Carnegie Mellon develops outsourcing rating model. PAGE 16 QuickStudy: SAML helps secure Web services. PAGE 40

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ERP EFFORT SINKS AGILENT REVENUE

Oracle's 11i apps stable after halting production

BY MARC L. SONGINI

The good news is that Agilent Technologies Inc. says its enterprise resource planning applications are stable. The bad news is they got that way only after a rocky ERP migration project that cost the company $105 million in revenue and $70 million in profits.

Last week, the Palo Alto, Calif., company, formerly a part of Hewlett-Packard Co., said problems with Oracle's 11i E-Business Suite software rollout froze production for the equivalent of a week, leading to the massive losses.

The Oracle system, part of

Agilent, page 12

ERP Burp

SEPTEMBER 2000: Project starts with aim of retiring up to 2,200 legacy apps running on HP-UX and Windows NT and migrating to Oracle apps.

JUNE 2002: Project begins to go live; difficulties are subsequently encountered in converting 6,000 orders from legacy format to Oracle format.

AUGUST 2002: Agilent blames complexity of project rather than quality of Oracle software; says project completion date has yet to be determined.

CISCO MOUNTS STORAGE OFFENSIVE

Challenges market leaders but still faces user scrutiny

BY LUCAS MEARIAN

Cisco Systems Inc., the 800-pound gorilla of networking, said last week that it's jumping into the Fibre Channel storage-area network arena with its own switches and directors. The move poses the first major challenge to Brocade Communications Systems Inc. and McData Corp., which together claim about 86% of the switch marketplace.

While Cisco's IP network installed base gives it a foot in the door of virtually every Fortune 1,000 company, analysts and storage administrators said it still faces scrutiny as a newcomer to the storage space.

Cisco said that its Multilayer DataCenter Switch 9000 family of storage switches and directors, both with 1G or 2G bit/sec. data transfer rates, will be available in the fourth quarter. Prices will start at $29,995.

Mario Mazzola, chief development officer at Cisco, said during a conference call that the company won't use its direct sales force to market the products. Instead, it will "leverage

Cisco, page 55

MORE STORAGE NEWS INSIDE

WORLDCOM TAKES FIREWALL ABROAD

Though some call it a diversionary tactic, service could slash costs for multinationals

BY MATT NAMBLEN

WorldCom Inc. announced an international expansion of its managed firewall service last week, creating the potential for multinational firms to substantially cut their telecommunications costs.

Several analysts derided the announcement as a means for the embattled telecom provider to steer attention away from the fact that it filed for Chapter 11 bankruptcy protection last month amid disclosures of improper accounting for billions of dollars in expenses.

But the service, built on WorldCom's existing collaboration with Check Point Software Technologies Ltd. in Redwood City, Calif., will be valuable to some existing domestic firewall customers who wish to expand the service abroad, said Jeffrey Kagan, an independent telecommunications analyst in Atlanta.

One such customer, The Blackstone Group in New York, has signed up for the service in London, said Jaime Padilla, manager of technology infrastructure for the private investment banking firm.

"We just signed for a managed firewall in London because it saves us a lot of money, and it means we don't have to pay an administrator to take care of it there," Padilla said.

Blackstone has for several years purchased managed firewalls from WorldCom that serve 450 users in New York and about five in Chicago. Another 50 users in London will now have faster Internet connections because they won't be routed back through New York for firewall protection. The London firewall will also enable Blackstone to eliminate a frame-relay connection in London that costs $10,000 a month and replace it with a T1 line running a virtual private network for about $3,000 a month.

WorldCom's financial problems haven't had much effect on Blackstone because the firewall service has been good

WorldCom, page 55

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The Server Ranks

Distributed server farms are getting out of control, IT managers say, thanks to the proliferation of e-mail and other applications. Consolidation onto bigger iron can help – although mixing the wrong applications can lead to disaster.

TECH ANALYSIS

STORY BEGINS ON PAGE 24.

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Market Fact: *Unisys security services, partnered with Microsoft products and solutions, provide our customers with highly secure and cost-effective mission-critical solutions.*

—Sunil Misra, Managing Principal, Worldwide Security Practice, Unisys

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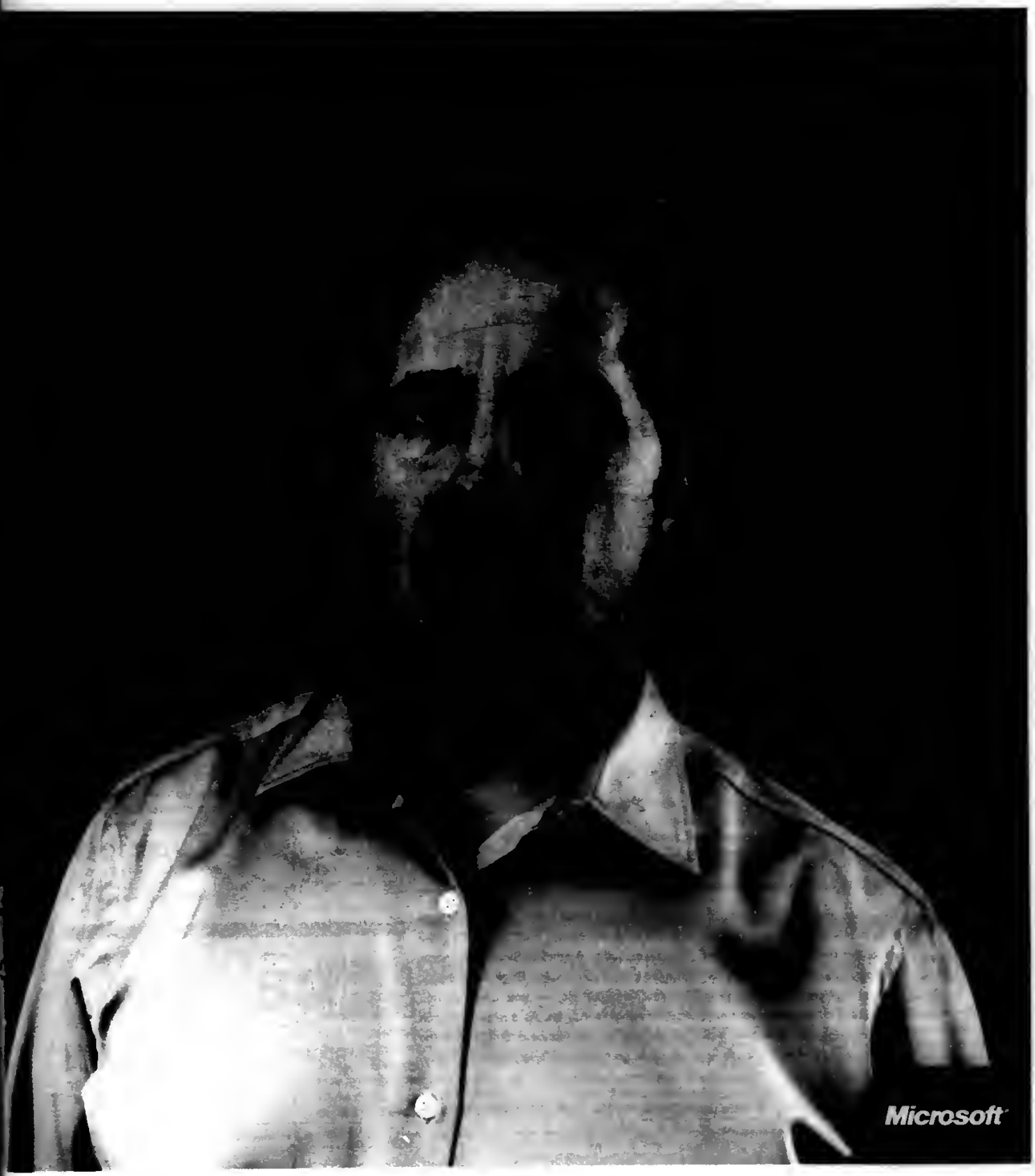
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A FIRST LOOK AT MICROSOFT'S TABLET

A oew breed of small computers makes it easier to take your computer anywhere and get real work done. Here's a first look at an Acer Tablet PC running Microsoft's new software. **PAGE 32**

STRATEGIC VENDORS

How do you assess your IT suppliers to determine which are strategic to your company? How does a vendor choose its strategic customers? It depends a lot oo how important the product and its quality is to botb you and the veodor, and what you both hope to get out of the business relatiooship. **PAGE 42**

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11 Mainframe costs aren't easy to control. Look out for "gotchas" in an IBM pricing plan. And Linux may be free, but running it on a mainframe costs mooey.

15 Michael Dell discusses how he plans to continue his company's strong performance in a weak IT business environment.

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44 Many technology terms are meaningless outside of IT, but that's oot stopping IT managers from using technical geekspeak and alienating their business users. Here's some advice on breaking the language barrier.

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21 **Michael Gartenberg** dismisses the argument that people want a single, multipurpose mobile device. What they want, he says, are mobile devices that converse rather than converge.

56 **Frank Hayes** hails warchalkers, who advertise boles in your wireless networks. He explains how they can help you get the backing to fully secure your network.

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Use QuickLinks to see related stories, discussion forums, research links, archives and more.

AT DEADLINE

Wal-Mart Names CIO

Wal-Mart Stores Inc. announced that it has appointed Linda Dillman as its new CIO. Currently vice president of international systems development, Dillman will replace Kevin Turner, who has been promoted to president and CEO of Wal-Mart's Sam's Club division. Dillman joined the company in 1991 and has had leadership roles in application development projects at the company.

Emergency Officials to Use IM Over Wireless

IBM has been picked to install a $20 million wireless network that will allow emergency personnel in the Washington area to communicate via instant messaging using handhelds, cellular phones and laptops. The messaging system, based on open Web standards and Java, will provide what voice radio systems can't: the means to seamlessly communicate with police, fire, medical and transportation officials in Washington, Virginia and Maryland.

Novell Has Positive Q3

Novell Inc. last week reported revenue of $282 million for its fiscal third quarter, with nearly $10 million in net income and earnings of 3 cents per share. The positive quarter was the result of better-than-anticipated business in Europe and sales of several large licenses for Web-based software in North America, said Novell Chairman and CEO Jack L. Messman.

Lucent Denies Report Of More Cutbacks

Lucent Technologies Inc. in Murray Hill, N.J., denied a report last week that it will cut 15,000 more jobs than previously announced. Its plans are still to reduce the workforce to about 45,000 workers by year's end, officials said. The network gear maker also said it hasn't determined whether meeting its financial goals will involve cutting any product lines.

UCITA Still Haunts IT

Banned 'self-help' provision lingers in law

BY PATRICK THIBODEAU
WASHINGTON

IT HAS BEEN CALLED a time bomb — code capable of disabling software — and some users fear its use could become pervasive if the controversial software law UCITA succeeds.

The Uniform Computer Information Transactions Act (UCITA), due for a renewed push for state-by-state adoption next year, lets vendors include code to trigger a shutdown if, for instance, a user's license has expired.

That type of code poses operational and security issues for IT, said Ken Tyminski, chief security officer at Prudential Financial in Newark, N.J. A time bomb or software restraint is a potential bug that could be triggered without warning, sending business systems crashing. Or it could be activated maliciously, giving hackers a back door to networks.

"That, to me, is very, very dangerous for the [insurance] industry and companies at large," Tyminski said. In response, Prudential is ensuring that its vendor contracts prevent any use of such systems.

This type of code "can cripple the business, and it can do it in a method where there has been absolutely no due process, there has been no chance at remediation, no chance at explanation," Tyminski said.

Corporate Fears

The mere existence of any restraint software or time bombs raises other security issues as well. Robert O'Connor, director of network integration services at Pennsylvania State University in University Park, warns, for instance, that a disgruntled former vendor employee could trigger such a system. "I don't trust anything like that," he said.

Users' concern about software restraints that are described in a section of UCITA called "electronic regulation of performance" underscores the ongoing fears they have about this complex licensing law.

UCITA's authors, the National Conference of Commissioners on Uniform State Laws, tried to appease opponents by banning the previously allowed "self-help" provision that allowed vendors to remotely disable software in a contract dispute. But that change simply shifted attention to other parts of the law.

For example, the Institute of Electrical and Electronics Engineers Inc. in New York claims that UCITA's provisions give vendors the right to build in back doors, which would result in a dramatic shift in software licensing.

"The industry is pushing very hard to turn it into a mainframe licensing model, where you will pay for your software on a yearly basis," said Alan Plastow, presideot of the International Associatioo of IT Asset Managers in Akron, Ohio. "That requires the use of automatic restraints, or it requires the use of a metering process."

But users areo't jumping on board. And Microsoft Corp. has said it has no plans to use embedded self-help features.

The use of software restraints woo't help vendors win contracts with large companies, said Steve McHale, an analyst at IDC in Framingham, Mass. But such techniques could be attractive to vendors of pricey applications such as engineering software systems.

Critics also assail UCITA because it protects vendors from liability. The Center for National Software Studies, formed earlier this year, is examining problems with software quality and is working oo a set of recommendations. UCITA's liability-limiting provision gives vendors little incentive to worry about the consequences of mistakes, said Alan Salisbury, who heads the Camp Springs, Md.-based center.

UCITA Version 2

- UCITA sets default provisions in software contracts. To change these defaults, users must negotiate with vendors.
- The law has been adopted in Virginia and Maryland. Proponents intend to renew efforts to win adoption in more states.
- UCITA also includes liability protection for vendors, which critics claim lets vendors off the hook for developing, selling and delivering poor-quality code.

HOW WE GOT HERE

For extensive background on UCITA-related issues, visit our Web site.

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www.computerworld.com

IBM Upgrades Open-Source Development Environment

Supports products from Sun and CA

BY CAROL SLIWA

IBM next month plans to announce the second version of the Eclipse development platform that it donated to the open-source community last year.

The new version, which had a beta release on June 28, will feature support for the latest Java technology from Sun Microsystems Inc., including the JavaDoc specification for generating code documentation, according to Bernie Spang, director of WebSphere Studio marketing at IBM.

Other new features include improved support for software management and version control software, such as that of Computer Associates International Inc. in Islandia, N.Y., Merant PLC in Hillsboro, Ore., and Rational Software Corp. in Cupertino, Calif., Sprang said.

But possibly more important than the new features is that Eclipse is cootinuing to evolve and gain momentum, according to analysts.

"IBM's ultimate goal is to establish Eclipse as the secood viable competitor to [Microsoft Corp.'s] Visual Studio," said Mark Driver, an analyst at Gartner Inc. in Stamford, Conn.

But Driver said Eclipse isn't likely to get support from major vendors such as Oracle Corp. or San Jose-based BEA Systems Inc. for competitive reasons. Instead, the platform is gaining favor among many small vendors "who have nothing to lose," he said.

From a user standpoint, the main benefit of Eclipse is the ability to work from a single interface with a wide range of tools made by the vendors who have elected to plug their products into the platform.

David Thatcher is president of Advanced Network Systems Inc., an Annandale, N.J., consulting and development firm that serves retailers and manufacturers. His company used Eclipse to migrate production planning applications written in Cobol to a Hewlett-Packard Co. server running Unix from an older HP server running a proprietary operating system.

Thatcher said his developers found a Cobol compiler from LegacyJ Corp. in San Jose that worked with Eclipse. After they wrote plug-ins to get their own migration tools to work with Eclipse, the four developers working on the project could use both tools from the same user interface.

"It definitely saved us months of work and probably thousands of dollars," Thatcher said.

NEW DEVELOPMENTS

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Congressman Says Data Mining Could Have Prevented 9-11

Claims agency he proposed would have gathered warnings about terrorist plans

BY DAN VERTON
PHILADELPHIA

Legislatioo that Coogress failed to adopt two years ago would have created an interagency data-mining capability that could have detected and helped prevent last September's terrorist attacks, a senior Republican congressman asserted last week.

Speaking near his home district at the Information Sharing & Homeland Security conference here, Rep. Curt Weldon (R-Pa.) lambasted the federal government, including Congress, for failing to act on critical data-mining and intelligence integration proposals that he and others authored years before the terrorist attacks.

"There are 33 classified agency systems in the federal government, but none of them link their raw data together," said Weldon, chairman of the House Subcommittee oo Military Research and Development. "We could have and should have had a better data-fusion capability on and before 9-11."

Weldon referred specifically to a governmentwide data-mining agency he proposed two years ago as part of the fiscal 2001 Department of Defense budget. The National Operations and Analysis Huh would have been responsible for supporting the intelligence community in developing threat profiles of terrorists and global hot spots.

According to Weldon, he briefed John Hamre, then deputy secretary of defense, on the idea, and Hamre agreed to fund the new agency.

But "on Sept. 11, that capability did not exist, and we paid the price," said Weldon.

His plan had been to model the agency after the Army's Land Information Warfare Activity (LIWA) at Fort Belvoir, Va., which Weldon credits with having one of the most effective operations for mining publicly available information in the intelligence community.

Weldon said he turned to the LIWA in 1999, when the CIA failed to deliver information he needed to negotiate the terms of Russia's participation in Kosovo peacekeeping operations. The LIWA came through with the information. When word got out about the source, Weldon was contacted by the FBI and the CIA, neither of which knew about the LIWA, he said.

Indeed, the government's information-sharing problems are in many ways cultural, said Steve Cooper, CIO for the Office of Homeland Security. "I haven't seen a federal agency yet whose charter includes collaboration with other federal agencies," said Cooper, who took on his White House responsibilities in March.

In any case, Weldon said he's convinced that a centralized data-mining capability within the intelligeoce community would have gathered indications and warnings that an attack was heing planned.

"We had never anticipated this type of incident," he said. "The problem was that the CIA didn't have data-mining technology to pore through open-source information."

Weldon's comments by no means fell on deaf ears.

"Congressman Weldon had a number of good ideas," said Philip Lago, executive secretary of the CIA. However, "what we have to deal with is that there are 434 others like him [with their own ideas] in the House of Representatives."

Other senior intelligence officials present during Weldon's keynote speech acknowledged privately that Congress shares responsibility for the shortcomings in the government's information-sharing efforts.

> On Sept. 11, the [data-mining] capability did not exist, and we paid the price.
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> REP. CURT WELDON (R-PA.)

For example, Congress recently denied the Bush administration's funding request to establish a central integration office within the proposed Department of Homeland Security. "To the best of our information, they don't believe it can he done," said Cooper.

INFO INTERCHANGE

Plans are emerging for national security data sharing.

QuickLink: 32280
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Financial Privacy Push Gathering Steam in States

Firms worry about impact of new laws

BY PATRICK THIBODEAU
WASHINGTON

In what may he more evidence of emerging consumer backlash against a federal financial privacy law viewed by many as too lax, California's San Mateo County last month approved a measure forcing financial services firms in the county to get customers' permissioo before sharing their data with third parties.

But scarier for financial services firms is a provision in the San Mateo ordinance that allows customers to opt out of having their information shared with companies' affiliates. Many financial service firms create separate legal entities, operating within the same corporation, to handle different lines of businesses. Executives say they need to he able to freely exchange data among those entities.

"We have affiliates that are nothing more than paper companies," said William Paukovitz, an assistant vice president and privacy officer at Fireman's Fund Insurance Co. in Novato, Calif. "There needs to he a distinction made, and that's being lost right now."

Adapting systems to comply with San Mateo's ordinance "would require a lot of additional systems infrastructure," warned Harvey Radin, a spokesman for Bank of America Corp. in Charlotte, N.C.

San Mateo isn't alone in challenging the federal privacy rules set in the Gramm-Leach-Bliley Act, which allows financial services groups to share a customer's data with third parties unless the customer says not to and gives customers no choice about having their data shared with affiliates.

In June, voters in North Dakota overwhelmingly voted to tighten financial privacy laws. Vermont officials have imposed similar restrictions.

Those separate actions for stronger privacy protections "show it is a movement across the country," said Ari Schwartz, a policy analyst at the Center for Democracy and Technology in Washington.

San Mateo County Supervisor Mike Nevin said his decision to spearhead the measure grew out of frustration with the California legislature's inability to act. "I wish the whole state and the country would have the same kind of opportunity for privacy," he said.

The county's right to regulate financial services is expected to face legal challenges. But the fate of the county's action may not he as important as public sentiment's potential effect on a looming congressional debate over financial privacy.

A provision of the Fair Credit Reporting Act (FCRA) that allows the sharing of certain kinds of data among affiliates will expire in 2004. The rule prohibits any state from restricting affiliate sharing. There are questions over whether San Mateo or any state can mandate an opt-out provision for sharing customer data with affiliates in light of the FCRA, said Kirk Hearth, chief privacy officer at Nationwide Financial Services Inc. in Columbus, Ohio.

Regardless of this legal question, Hearth said he expects that the need to extend the FCRA's affiliate-sharing rules beyond 2004 gives Congress the means to reopen the broader financial privacy debate. And he believes companies may he willing to make tradeoffs in exchange for a rule that preempts the ability of states to set their own standards.

In the meantime, experts say companies need to develop systems that can he adapted to varying privacy rules.

"It's clear from recent history that this is a constantly shifting environment," said Dennis Behrman an analyst at Meridien Research Inc. in Newton, Mass.

Congressman Says Data Mining Could Have Prevented 9-11

Claims agency he proposed would have gathered warnings about terrorist plans

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Firms worry about impact of new laws

BY PATRICK THIBODEAU
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Backlash

The Gramm-Leach-Bliley Act is under attack.

RECENT ACTIONS: Vermont, North Dakota and San Mateo County in California have adopted tougher standards.

UPCOMING DEBATES: The affiliate-sharing rights allowed under the Fair Credit Reporting Act expire in 2004.

LEGAL CHALLENGES: The insurance industry has taken Vermont to court, and San Mateo faces similar action.

San Mateo isn't alone in challenging the federal privacy rules set in the Gramm-Leach-Bliley Act, which allows financial services groups to share a customer's data with third parties unless the customer says not to and gives customers no choice about having their data shared with affiliates.

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The county's right to regulate financial services is expected to face legal challenges. But the fate of the county's action may not be as important as public sentiment's potential effect on a looming congressional debate over financial privacy.

A provision of the Fair Credit Reporting Act (FCRA) that allows the sharing of certain kinds of data among affiliates will expire in 2004. The rule prohibits any state from restricting affiliate sharing. There are questions over whether San Mateo or any state can mandate an opt-out provision for sharing customer data with affiliates in light of the FCRA, said Kirk Hearth, chief privacy officer at Nationwide Financial Services Inc. in Columbus, Ohio.

Regardless of this legal question, Hearth said he expects that the need to extend the FCRA's affiliate-sharing rules beyond 2004 gives Congress the means to reopen the broader financial privacy debate. And he believes companies may be willing to make tradeoffs in exchange for a rule that preempts the ability of states to set their own standards.

In the meantime, experts say companies need to develop systems that can be adapted to varying privacy rules.

"It's clear from recent history that this is a constantly shifting environment," said Dennis Behrman an analyst at Meridien Research Inc. in Newton, Mass.

BRIEFS

EDS, ABN Amro Close To Inking $1.5B Deal

ABN Amro Bank NV is in the final stages of negotiations with Electronic Data Systems Corp. about a five-year IT services contract worth at least $1.5 billion, the companies said last week. The deal, expected to be finalized during the fourth quarter, calls for EDS to provide a variety of IT services to ABN Amro's Wholesale Clients unit, including application management and development.

Dell to Sell Unbranded PCs to Small Resellers

Dell Computer Corp. is making a push into the "white-box" market by selling unbranded PCs to small computer resellers that serve as outsourced IT departments for small and midsize businesses. The WhiteBox 5100, with a base price of $499, will be sold exclusively to service providers that register with Dell.

Internet Society Tapped To Run .Org Registry

The Internet Corporation for Assigned Names and Numbers (ICANN) weighed in with its choice on who should run the .org domain name registry last week, tapping the Internet Society in Reston, Va. ICANN's report on the matter is subject to public comment and feedback from the other 10 bidders. The winning bidder would take over responsibility for the .org registry from VeriSign Inc. on Jan. 1.

TurboLinux Sells OS Unit

TurboLinux Inc., which makes a version of Linux that has become a top seller in Asia, has sold its operating system business to a Japanese software vendor. TurboLinux will become a division of Software Research Associates Inc. (SRA) and move its headquarters from Brisbane, Calif., to Tokyo. SRA will also obtain the TurboLinux brand name. Financial details of the sale weren't disclosed.

PeopleSoft to Highlight Enterprise Integration

User event sets stage for promotion of V8

BY MARC L. SONGINI

AT ITS annual user conference this week, PeopleSoft Inc. will be pushing the value of its applications in delivering real-time information throughout organizations to improve financial reporting, accountability and security.

The Pleasanton, Calif.-based enterprise resource planning supplier will use the occasion of its Connect 2002 Americas event in New Orleans to tout enhancements to its lineup for enabling a fully connected enterprise.

For example, PeopleSoft will announce a product called AppConnect, which combines portal, data warehouse and integration technology to ease the integration of information in heterogeneous business applications and processes.

"Organizations want to become real-time enterprises," said PeopleSoft Chief Technology Officer Rick Bergquist. "They absolutely have a need, and we're providing them with the means to do that."

Users and analysts are urging PeopleSoft to offer more case studies related to the installation and operation of PeopleSoft 8, the latest version of the company's Web-based applications suite.

According to Erin Kinikin, an analyst at Cambridge, Mass.-based Giga Information Group Inc., migrating from PeopleSoft 7 to Version 8 hasn't been as "straightforward as companies would like." Users want to see more examples of actual implementations before they start budgeting and planning for Version 8, in order to avoid some of the pitfalls involved with the upgrade, she said.

Avoiding complexity is also an issue for some users.

"PeopleSoft has had somewhat of an algae bloom of new products over the past five years," noted Jim Prevo, CIO at Green Mountain Coffee Roasters Inc. in Waterbury, Vt. He said his company is most interested in learning how to get a return on investment for all the new PeopleSoft applications.

"I'm taking it slow in terms of adopting any new products," Prevo said, noting that he would like to see PeopleSoft's product line become more streamlined, with fewer standalone applications.

Connect 2002

Announcements at this week's PeopleSoft event will include the following:

- An investors' portal to disseminate company data externally to shareholders
- Enhancements to PeopleSoft's student administration product
- AppConnect, a combined portal, data warehouse and data integration broker aimed at more tightly integrating corporate data
- PeopleSoft's supplier relationship management module will be enhanced and packaged for six industries, including financial services and health care

Microsoft Releases Office XP Service Pack

New security patch included among bug fixes

BY CAROL BLIWA

Microsoft Corp. last week released the second package of bug and security fixes for its Office XP application, including a patch made available for the first time to address Web component vulnerabilities.

Typically, a Microsoft service pack contains a collection of all the bug and security fixes that have been made available on an individual basis since a product's launch or the prior service pack's release. But the Office XP Service Pack 2 released last week also contains a newly released patch to address three vulnerabilities to Office Web components, the most serious of which was rated "critical" to client systems and could allow an attacker to run commands on a user's PC.

A company spokesman said the vulnerabilities were reported to Microsoft March 17, and the Bulgarian "bug hunter" who identified them went public with the information two weeks later. Microsoft claimed that his disclosure "placed users at risk by not providing Microsoft with ample time to address vulnerabilities" to 16 affected products.

The Bulgarian couldn't be reached for comment.

According to Microsoft, the vulnerabilities resulted from implementation errors in certain methods and functions exposed by ActiveX controls.

In addition to bug and security fixes, Office XP Service Pack 2 contains the most recent product updates designed to improve stability and performance, according to Simon Marks, a product manager on Microsoft's Office team.

Marks said the maximum download of Service Pack 2 is 15MB. Users can download it from Microsoft's Web site or order a free CD and pay the shipping charges.

Service Pack 1 for Office XP was released Dec. 13.

Beta versions of Office 11 are due in the next few months, with the final version to follow sometime next year. Office 11 will feature enhanced XML support, added collaboration capabilities and user interface improvements, Marks said.

IBM, Microsoft to Demo Web Services

BY CAROL BLIWA

IBM and Microsoft Corp. plan to demonstrate tomorrow the interoperability of advanced Web services running on disparate operating systems, company officials said.

The companies claim that the demonstration, which will take place at the XML Web Services One Conference & Expo in Boston, will showcase a real-world scenario that makes use of Web services based on the latest specifications, including security standards that are currently under development. The Web services will run on IBM's WebSphere application server and on Microsoft's .Net-enabled Windows operating system.

Officials at both companies said they have worked with the industry to develop the specifications needed to make interoperability a reality on heterogeneous systems. "With the demo, we will drive home the progress we have made thus far," said Steven VanRoekel, director of Web services technical marketing at Microsoft.

A forum on security standards for Web services will be held today at the conference.

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Visual Studio .Net Releases to Sync Up With Key Products

Next tool, due in first quarter of 2003, will coincide with Windows .Net Server

BY CAROL SLIWA

MICROSOFT CORP. last week announced plans to synchronize future versions of its Visual Studio .Net development tools with the release of key products, including its upcoming Windows .Net Server operating system and SQL Server database.

That means the next version of the Visual Studio .Net tool suite, code-named Everett, is due in the first quarter of next year, when Windows .Net Server is expected to become generally available, according to Chris Flores, a product manager in Microsoft's .Net tools group. The long-delayed Windows .Net Server will be the first Microsoft operating system to have the .Net framework code built into it.

But the Visual Studio Everett release, which has yet to be officially named or priced, is being viewed only as an "incremental release," compared with the major new versions pegged to ship with the next version of Microsoft's SQL Server, code-named Yukon, and the upcoming Windows operating system, code-named Longhorn.

The most critical new twist for Visual Studio for Yukon, which is due in 2004, will be the inclusion of Microsoft's Common Language Runtime (CLR) inside the SQL Server engine, Flores noted. The CLR, which is part of Microsoft's .Net framework, allows programs written in more than 20 languages to run on Windows.

With the CLR built into SQL Server, developers will be able to program for SQL Server using the same language and Visual Studio .Net tools they use to write their desktop- and server-based applications, Flores said. Today, developers typically use the T-SQL language for Microsoft database programming, but with the Visual Studio for Yukon release, they will be able to use Visual Basic, C#, J#, C++ and other CLR-supported languages to write to databases, he noted.

PRODUCT PREVIEW

Microsoft will unveil today a preview version of a Web Services Development Kit.

QuickLink: 32393 computerworld.com

Flores said database programmers will also gain the benefits of a richer integrated development environmeot, complete with debugger and editor.

But it remains to be seen how many developers will use Visual Studio tools to program to databases, since many companies have database analysts who now do that using T-SQL.

Mike Gilpin, an analyst at Cambridge, Mass.-based Giga Informatioo Group Inc., noted that IBM, Oracle Corp. and Sybase Inc. built Java virtual machines into their databases, yet "people kind of yawned" and stuck with their old, familiar stored procedures rather than switching to Java to put business logic into their databases. But Microsoft users may be more inclined to try the new approach because they're accustomed to tightly integrated Microsoft products, said Gilpin.

"I could leverage a standard set of skills within my IT organization," said Neville Teagarden, CIO at Navigant International Inc. in Englewood, Colo. He said his database analysts should adapt quickly, and the new approach would ultimately help IT "to move quicker."

Beyond Yukon, Microsoft is planning another major release of Visual Studio .Net in 2005 to coincide with Longhorn, according to a company spokesman. Visual Studio for Longhorn will be tightly tied to the new operating system and will allow developers to take advantage of its new model for file system storage, Flores said.

More near term, the primary focus of Visual Studio Everett will be enhanced reliability, stability, security and performance, Flores said. "If you're an existing '02 developer, you're really going to look at this as a refinement and maturity release," he said.

Existing Visual Studio .Net customers will be able to upgrade to the Everett tool for $29 if they're not covered by Software Assurance or a Microsoft Developer Network subscription, Flores said. ▶

Visual Studio Everett

The next version of the Visual Studio .Net development tool set will include the following new features:

A built-in mobile Internet tool kit and localized versions of .Net Compact Framework. Currently, the mobile tool kit and beta versions of the .Net Compact Framework must be downloaded and combined with Visual Studio .Net.

Improved compliance of the C++ tool to standards of the American National Standards Institute, which should ease the porting of C++ code from Linux and Unix to Windows.

Visual design environment for C++ developers building user interfaces, similar to the Windows Forms designer that Visual Basic, C# and J# developers now use.

Built-in Visual J# tool, so developers don't have to download it separately.

SOURCE: MICROSOFT CORP.

Rational Software Tool to Work With Visual Basic .Net

Analyst questions its appeal to developers

BY CAROL SLIWA

Rational Software Corp. unveiled several new tools and features during its annual user conference last week, including a version of its visual design and modeling tool that will work with Microsoft Corp.'s Visual Basic .Net and ASP.Net development environments.

The Cupertino, Calif.-based company launched the Rational XDE Professional tool in February, but at that time, the tool shipped with IBM's WebSphere Studio Workbench and could be installed only into IBM's WebSphere Studio Application Developer or Microsoft's Visual C# .Net tool.

Version 2.1 of Rational XDE Professional, which is due to ship this week, adds support for Microsoft's Visual Basic .Net and ASP.Net development environments and tacks on two features to the product.

Bill Taylor, director of developer marketing at Rational, said the tool will now support special types of Unified Modeling Language classes, called stereotypes, which can represent a server page, a client page, an HTML form or a Web service. The other new feature is a collection of four drag-and-drop patterns that developers can use to solve common design problems.

Tool Belt

Rational made several announcements at its annual user conference last week, including the following:

Rational XDE Professional Version 2.1's support for Microsoft's Visual Basic .Net and ASP.Net

The expansion of Rational Unified Process development guidance, to include an extreme programming plug-in

Rational Test RealTime's support for the testing of Java 2 Standard and Micro Edition applications

The introduction of tools for runtime analysis of embedded systems and Linux applications

With Rational XDE installed in the Microsoft or IBM tools, developers no longer have to toggle between screens if they want to do visual design and modeling in addition to their general development work, Taylor said.

But Thomas Murphy, an analyst at Stamford, Conn.-based Meta Group Inc., said it remains to be seen how useful the Rational XDE product will be for Visual Basic programmers. He noted that Visual Basic tends to be used for "fast kinds of jobs," and developers may not be inclined to "sit down and architect out this beautiful model."

Developers who build complex applications and need to document their systems may find the Rational tool useful, Murphy said. "From a documentation standpoint, it would give them a better idea of what's going on — the pieces and how they relate to each other," he said. ▶

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BRIEFS

National Guard Builds 54 SANs

The Army National Guard is spending about $10.5 million to deploy storage-area networks (SAN) in all 50 states and four territories where it has headquarters. The National Guard's effort involves 200TB of data storage and is intended to consolidate servers and its personnel and logistics data onto SAN islands. Northrop Grumman Corp. in Los Angeles began the installation with EMC Corp. storage arrays and management software in June. It expects to finish the project by October.

I2 Expands Its Restructuring Plan

Dallas-based i2 Technologies Inc. said it would lay off 35% of its employees and slash spending by 40%. For the second quarter, which ended June 30, i2 reported revenue of $120 million, compared with $249 million for the second quarter of 2001. The supply chain software vendor posted a $194 million operating loss for the quarter.

J.D. Edwards Posts Third-Quarter Profit

J.D. Edwards & Co. appears to be staying on its turnaround course, with revenue growth and a profit in the third quarter. The Denver-based business software vendor last week reported net income of $9 million for the quarter, compared with a loss of $185 million the prior year. Revenue grew 9% to $228 million.

Short Takes

SAP AG plans to add financial services policy management capabilities to its mySAP Insurance product by the end of 2003. . . . Rockville, Md.-based MANUGISTICS GROUP INC. will embed pieces of Ottawa-based COGNOS INC.'s business intelligence technology into its NetWorks ONEview online analytical transaction processing product.

Sun Builds Storage Software on Standards

Move is a first; little benefit likely until other vendors follow

BY LUCAS MEARIAN

SUN MICROSYSTEMS INC. last week launched a new version of its storage-area network (SAN) management suite that is the first storage software to use standards central to an industrywide effort to bridge the interoperability gap in multivendor SANs. The new management platform also ties together existing management applications under a single view.

Sun's latest version of its StorEdge Enterprise Storage Manager software uses Common Information Model (CIM) and Web-Based Enterprise Managemeot (WBEM), the two primary elements of the Storage Networking Industry Association's draft storage managemeot specification, formerly known as Bluefin.

Mark Canepa, executive vice president of storage products at Sun, said the new management software was based on proposed industry standards because it will eventually allow the company to offer packaged services based oo whatever vendor's products are used in a customer's network storage architecture.

"Increasingly, our customers can't afford to be tbeir own system integrators," Canepa said. "You not only have to manage your stuff, but in order to be able to make it in this environment, you've got to be able to manage a lot of other stuff. That's how we intend to position ourselves and how we will differentiate ourselves vis-à-vis the Hewlett-Packards and IBMs of the world."

Canepa said that in the future, Sun will focus on better service-level agreements and lower total cost of ownership through multivendor storage networks. "We're a systems company where customers come to get solutions to problems," he said.

Suo's decision to write its software to industry standards is a first, but the move will have little initial benefit because other vendors have yet to adopt the model, said Dianne McAdam, a storage analyst at Illuminata Inc. in Nashua, N.H.

But "CIM standards are important, because customers will eventually benefit wheo we can manage everyone's devices using the same standard," McAdam said. "They're ahead of the game, but at least they're already going to be there when everyone else gets there."

Charles Sears, manager of research computing for the College of Oceanic and Atmospheric Sciences at Oregon State University in Corvallis, is beta-testing Sun's new storage management software and says interoperability is crucial to scaling a SAN that's growing by terabytes every year.

"With more powerful processors and the decrease in overall cost associated with those processors, we're entering a new age of commodity hardware," said Sears. "As you huild on this hardware, you have to worry about scale. Sun's new software will finally allow us to get a handle on an enterprise view of our data."

StorEdge Enterprise Storage Manager suite offers topology reporting, network health monitoring, diagnostics and device monitoring under a ceotralized view.

In related news, Sun also announced new products in its tape library lioe. The new StorEdge L25 and L100 tape libraries will offer high capacity in a smaller footprint for midrange applications. The L100 and L25 tape libraries will be based on Quantum Corp.'s ATL M-Series automated tape libraries, which provide flexible performance and capacity, modular salability and unbeatable density.

The Sun StorEdge Library scales from one to 12 tape drives, providing up to 20TB capacity when configured in a two-module stack. The Sun StorEdge L25 library scales from one to 14 tape drives, providing up to 35TB when configured in a seven-module stack. Both the L100 and L25 can be configured as a single integrated library using Sun's StackLink appliance.

NEW PRODUCT

Open Storage

Sun's new open-standards-based StorEdge Enterprise Storage Manager:

- Starts at $15,000
- Is built on CIM
- Uses the WBEM standard as an interface among multivendor storage devices
- Works with Solaris and is accessible from Linux, HP-UX and other hosts via a Web-enabled portal
- Can also perform array management for Hitachi Data Systems Inc.'s Lightning 9900 storage array

Microsoft Warns of Hole In File Transfer Manager

BY CAROL SLIWA

Microsoft Corp. last week warned members of its developer network and beta and volume licensing programs about a vulnerability in certain older versions of the File Transfer Manager component they use to download software from its relevant sites.

The vulnerability could enable an intruder to gain control over a user's system, according to an e-mail Microsoft sent to potential users of its File Transfer Manager.

A Microsoft spokesman said the company believes that no more than a "few thousand users" are now at risk, since figures show that the "vast majority" of users have downloaded Version 4.0 of File Transfer Manager, which has been available since June and isn't considered vulnerahle.

"We believe that no more than about 50,000 users were ever exposed to the vulnerable control," the spokesman said. "And of that 50,000, there's reasoo to believe that the vast majority had already upgraded."

In any case, Microsoft urged all users of its developer network and beta and volume licensing programs to either upgrade to the latest 4.0 version of File Transfer Manager or remove the vulnerable version by following the instructions at *http://transfers.one.microsoft.com/ftm/install.*

Andrew Tereschenko, a software researcher in Odessa, Ukraine, identified and reported the vulnerability to Microsoft and helped work on tbe solution. Tereschenko said File Transfer Manager's ActiveX control, which was signed by Microsoft and marked as safe for scripting, could have been installed by any Web site, if the user didn't already have it. Invalid parameters could then be passed via script and exploit the buffer overflow, he said.

Regarding a second risk, Tereschenko said File Transfer Manager's ActiveX control could allow any file to be downloaded to or uploaded from a user's PC without the user's approval, through a "man-in-the-middle attack." Traffic could be intercepted between a host server and the target PC, and a third-party server could be configured to give responses that appear to be coming from Microsoft's Web server, be said.

IBM Says Its Mainframe Pricing Model Isn't for Everyone

WLC can cut the cost of mainframe upgrades when done right — but beware of 'gotchas'

BY JAIKUMAR VIJAYAN

Nearly two years after IBM announced a new pricing model aimed at making mainframe hardware upgrades cheaper, the company is urging users to be careful about how and where they apply it.

At last week's Share user show in San Francisco, IBM said its Workload License Charge (WLC) can reduce the huge software fee increases that are traditionally associated with mainframe upgrades. But the key to savings lies in understanding a system's capacity requirements and software usage patterns and in knowing what software products to run in each mainframe partition.

WLC appears to offer users a way to lower the cost of mainframe upgrades, said Rob McCurley, a senior vice president at AFLAC Inc. in Columbus, Ga. The insurance company is Web-enabling a core mainframe-based policy management application using IBM's WebSphere applicatioo server technology.

"IBM is working very hard to keep the mainframe a viable server platform," and WLC is part of the company's effort, McCurley said.

However, users who fail to completely analyze their individual situations could end up disappointed — and have no way to go back to previous pricing models, said Marcy Nechemias, an IBM pricing manager.

> [IBM's concern] is that customers will make snap judgments.
>
> MARCY NECHEMIAS, PRICING MANAGER, IBM

MAINFRAME INFO
For more mainframe-related coverage, visit our Web site
QuickLink: a2440
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"The concern that we have is that customers will make snap judgments without doing a full analysis, and that might get them to WLC before they should," Nechemias said.

IBM announced WLC in October 2000 along with its 64-bit zSeries mainframes. WLC lets users pay for mainframe software based on the average size of their workloads and not on a system's capacity.

Users can choose from several WLC options, including the following:

- A full-capacity WLC model that works the same way as other capacity-based licenses, except that it uses a different pricing metric for computing software costs.
- A subcapacity WLC model that charges users based on their software's average utilizatioo of a mainframe partition over a four-hour period.
- A defined-capacity model, where users can define the hardware capacity they need within a partition for a particular workload and pay software fees for that defined capacity.

Things to Watch For

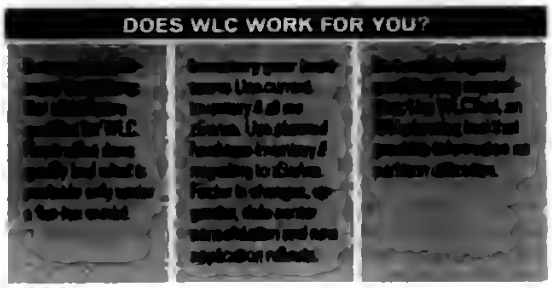
But there are several "gotchas," analysts said.

For instance, a usage-based licensing option available on several crucial pieces of IBM software isn't available under WLC. So some users may actually be better off sticking with their curreot license models, said Al Sherkow president of I/S Management Strategies Ltd. in Whitefish Bay, Wis.

Seasonal variations in software usage could affect savings for those who choose a subcapacity option, Nechemias said.

Companies that opt for the defined-capacity method get more predictable bills. But the model works by forcing resources to remain within the defined capacity, hurting performance in some situations, Sherkow added.

"The key difference [from previous models] is that users, for the most part, didn't need to be concerned about where specific products were running, because IBM and the other vendors were charging by system capacity," Sherkow said. With WLC, users need to pay special attention to the software mix in a partition to see savings, he said.



Linux on a Mainframe Is Hardly a 'No-Cost Scenario'

The software is free, but you need pricey add-ons to run it

BY JAIKUMAR VIJAYAN

Linux may be free, but users shouldn't overlook the costs associated with bringing it to the mainframe.

That's according to analysis delivered by Cambridge, Mass.-based Giga Information Group Inc. at last week's Share user conference in San Francisco.

For one thing, users planning to run Linux-based applications oo IBM's zSeries mainframes should factor in the costs associated with getting enterprise-class support and maintenance services.

Depending on the kind of application and the number of CPUs Linux is running on, such costs can easily range from $25,000 to $30,000 annually, said David Mastrobattista, an analyst at Giga.

There's also the one-time cost associated with buying the zVM operating system — starting at around $45,000 — needed to run Linux on mainframe partitions. Optional zVM-related service and support cost about $11,000 per engine annually, Mastrobattista said.

Oo top of that is the software fees users need to pay if they want to optimize Linux applicatioo performance on mainframes using workload management and systems management software.

Keep Your Eyes Open

"People need to go into this with their eyes wide open. It's not a no-cost scenario just because Linux is free," Mastrobattista said.

Giga's warning comes at a time when Linux adoption on mainframes appears to be growing. Approximately 500 mainframe shops have some form of Linux applications running on big iron, with an estimated 20 sites running mission-critical applications, according to Giga estimates.

And IBM claims that customers such as Air New Zealand Ltd., Winnebago Industries Inc., Boscov's Department Stores and L.L. Bean Inc. have Linux applications running on mainframe partitions.

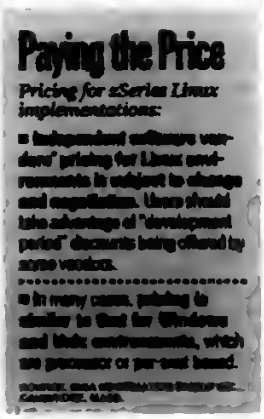
The opportunity to consolidate multiple Linux servers on a single box makes for better resource utilization and administration, said Gregory Hachigian, a manager of systems operations in the department of medical center computing services at UCLA Healthcare. And it has been so cost-effective that the organization is looking at consolidating more applications, he said.

The department is currently running two applications across 22 Linux servers in a single System 390 mainframe petition.

"We think the cost per server is going to become less as we keep adding more servers," Hachigian said.

IBM's efforts to make it as inexpensive as possible for companies to run Linux and other new workloads on mainframes have been contributing to the savings.

For example, the vendor offers an engine-based license that lets mainframe shops add capacity for running new applications without affecting other software fees.



Adtran Enters Branch Office Router Space

Hopes to win market share from Cisco

BY MATT HAMBLEN

ADTRAN INC. in Huntsville, Ala., is planning to announce two modular access routers for branch offices next month in an effort to gain a larger share of the router market now dominated by networking giant Cisco Systems Inc.

The NetVanta 3200 and 3205 access routers will cost 40% less for installation and maintenance compared with Cisco gear, according to Adtran, analysts and customers.

Unlimited Cash Inc., a Camarillo, Calif.-based manufacturer of automated teller machines, has been an early customer of the 3200. The company has used the 3200 for the past two months as a T1 gateway to host e-mail and a Web site used by 50 employees.

"I looked at some Cisco routers, and the price difference was phenomenal, so I took a gamble and took an Adtran," said Dave Lenwell, network manager at Unlimited Cash. "I've found it easy to use, with all the features I need. But price was the biggest reason."

Analysts said Cisco now controls more than 90% of the branch office access router market, while Adtran has 2%. A single-host Netvanta 3200 router from Adtran would cost $995, less than half the cost of the closest Cisco product, analysts confirmed.

"Adtran has an excellent price, and Cisco won't come down and match this price," said Zeus Kerravala, an analyst at The Yankee Group. But Cisco offers more features for supporting multiple protocols and represents a different class of products, be added.

"If all you want is something to terminate a LAN handoff, the Adtran product works," Kerravala said.

Lenwell said Adtran has mimicked Cisco's method for configuring the router, making it easier for him and other network managers familiar with Cisco products to make installs and updates.

One tester of the Netvanta was the Tuscumbia City Schools in Tuscumbia, Ala., which knew about Adtran because the company is based just 80 miles away. The 3200, which was tested at the school system for four months, increased LAN speeds and automatically reset itself perfectly after several lightning storms, said Percy Posey, network administrator.

When the state school system changed to a supercomputer, it mandated Cisco routers, so the Adtran gear had to go. But Posey said, "I would definitely recommend it."

NEW FEATURES

NetVanta Routers

- **3200:** Desktop version, $695 base price
- **3205:** Rack-mount version, $795
- **Network interfaces:** Include T1/FT1 for an additional $300 per machine
- **Security:** Stateful Inspection Firewall; Cyber Assault Protection
- **Processor:** 80-MHz Motorola MPC 860

Continued from page 1

Agilent

which went live in June, handles about half of the company's production work and almost all of its financial operations, as well as functions such as order handling and shipping.

Agilent is in the process of migrating as many as 2,200 legacy applications that it inherited from HP to Oracle. As part of the switch-over, approximately 6,000 orders in the internally developed legacy systems had to be converted to an Oracle-friendly format, an Agilent spokeswoman said. She said the configuration process had problems requiring correction.

In a statement last week, Agilent President and CEO Ned Barnholt said the disruptions after going live were "more extensive than we expected."

The Agilent spokeswoman said the issue wasn't the quality of the Oracle application, but rather the "very complex nature of the enterprise resource planning implementation."

For its part, Oracle Corp. said it's working closely with Agilent. "At Oracle, we are fully committed to all of our customers for the long haul and support them in any way necessary," the company said in a statement. "We have a strong relationship with Agilent, and both companies believe the implementation is stable."

Agilent also had a take-away lesson: "Enterprise resource planning implementations are a lot more than software packages," the company said in a statement to *Computerworld*. "They are a fundamental transformation of a company's business processes. People, processes, policies, the company's culture are all factors that should be taken into consideration when implementing a major enterprise system."

According to one analyst, ERP disasters are often caused by the user company itself. Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif., said 99% of such rollout fiascoes are caused by "management's inability to spec out their own requirements and the implementor's inability to implement those specs."

Tool Integrates Desktop, Mobile Device Management

Works with prior Intel desktop tools

BY MATT HAMBLEN

XcelleNet Inc. and Intel Corp. are preparing to release a mobile management software package designed to help IT managers control both handhelds and desktops from a single console.

The software, to be called Intel LANDesk Mobile Manager, will combine Intel's LANDesk Management and Atlanta-based XcelleNet's Afaria mobile/handheld management software. It's due Sept. 10.

IT managers have consistently called on vendors to create centralized tools for securing, monitoring and updating handhelds and to bring that function within the realm of widely available products for updating and monitoring desktops.

Philip Skinner, director of enterprise services at the Ohio State University Medical Center in Columbus, who has about 1,600 resident doctors using Palm Inc. handhelds, manages them with XcelleNet's Afaria. Although he isn't using LANDesk to manage his 4,000 desktop PCs, he indicated that LANDesk Mobile Manager is worth evaluating. "Marrying the two together obviously would be positive," he said.

Easing Management

The cost of controlling handhelds is tremendous for a large corporation that has many thousands of workers using a variety of devices, analysts said. Theft and security are huge concerns, but corporations also worry about the cost of application updates.

"Enterprises of all sizes are looking for one-stop shopping for managing their desktops, laptops and, more often now, their wireless devices," said Ronnie Colville, a network and systems management analyst at Gartner Inc.

Analyst Ken Smiley at Giga Information Group Inc. said companies can cut their mobile deployment operating costs in half with mobile management tools, many of which have until now been available only through smaller vendors.

The Intel/XcelleNet partnership will compete against Novell Inc.'s ZENworks for Handhelds. Microsoft Corp. is developing mobile management features to run atop its desktop Systems Management Server, Smiley said.

The Tivoli and Unicenter desktop management packages from IBM and Computer Associates International Inc., respectively, can be equipped with mobile management add-ons, but at much higher cost, Smiley said. Intel's Mobile Manager will begin at $64 per seat, while IBM and CA prices are above $90 per seat.

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COMMUNICATION WITHOUT BOUNDARIES

Dell Spells Out Strategy for Continued Market Defiance

Commoditization model a basis for expansion plans

BY BOB BREWIN, DON TENNANT AND MARYFRAN JOHNSON

ROUND ROCK, TEXAS

"We have a lot to smile about, a lot to be thankful for."

Dell Computer Corp. founder, chairman and CEO **Michael Dell** wasn't kidding. His company had just reported quarterly financial results that seemed to defy the reality of the IT marketplace — a profit of over half a billion dollars and 18% growth in product shipments. Last week, at his company's sprawling headquarters here, Dell spoke with *Computerworld* about how he plans to keep grinning in a frown-filled IT business environment.

When is IT spending going to start picking up? I had a couple TV interviews a few months ago, and somebody said, "Nobody's spending any money on IT." There were over 30 million computers sold last quarter. So that's a pretty big playground for us to play around in, and there's still a lot of money being spent on IT.

One of the things we're seeing is that the spending that is occurring is very different from the spending that was occurring two years ago, when you had this bubble and euphoria going on.

For example, a large investment bank says, "We're going to shift from proprietary Unix to Linux on Dell." So their spending for the proprietary stuff goes from tens of millions to nothing, and their spending with us goes to maybe half or 40% of what it was with the other guys, but they get more computing power. So if the industry transitions from proprietary to open, the cost comes down. It's better for customers — more efficient in all kinds of ways. It's not necessarily good for all vendors.

Is Linux going to displace higher-margin, more profitable operating-system sales? It is clearly eating into the proprietary Unix platform. Six months or a year ago, we had isolated instances. Now the whole board's lit up. It's all over many, many industries and companies, and it's getting to be a lot more of a pervasive thing. If you look at the history of this, we know what happens at the end of the movie. There aren't a lot of proprietary technologies that stay around for a long time.

You get the proprietary vendors saying, "We spend more on R&D, therefore we're better." Well, they have to spend more on R&D, because they're developing something only for themselves and they have to put all these investments in to protect the part that's proprietary.

But even these "proprietary" vendors you refer to have recognized that they have to be more standards-focused. Well, they're obviously moving in that direction — HP, IBM, even Sun. Sun has joined the Linux parade, I see. Welcome to the party.

You've said that you're going to get into the printer business. Can you elaborate on your plans? We're looking at both the inkjet and the laser business. We think there's an opportunity to deliver great value to customers in this market; we don't think it's as efficient as it could be, and our job is to make markets more efficient — make products more affordable.

Was this a way to stick it to Hewlett-Packard and Compaq? Why did we go in the server business in 1995? One, it was the next big opportunity. It was also true at that time that one of our competitors — Compaq — was dramatically overcharging customers for those products, for not a lot of good reasons. And because they were overcharging those customers for those products, they had the ability, at least in theory, to undercharge on other products.

Now, that game kind of ended because we entered the server market and the server market got more competitive. And now we're a few more chapters down in the book. There's a fairly similar analogy here, and the opportunity is very, very similar.

So you're taking the Dell approach and just applying it to one market after another that you see becoming a commodity. Yeah, I have a fundamental belief that all technologies over time commoditize. I don't think you can argue with that; I think it's pretty well established that that's the case.

As you increasingly commoditize in the storage arena, that works very directly against the business model of your partner in that space, EMC Corp. Won't EMC eventually see you as a competitor? Certainly, we don't have the power to commoditize things all by ourselves. I think those things are happening somewhat just by the forces of the market. If we don't do it, somebody else will. I've talked to [EMC CEO] Joe Tucci, and he understands this. He understands that there are parts of the storage market that are rapidly commoditizing. So a partnership with Dell in driving manufacturing and logistics and broadening distribution to get these products out to more customers — that's good for EMC, and it's good for Dell.

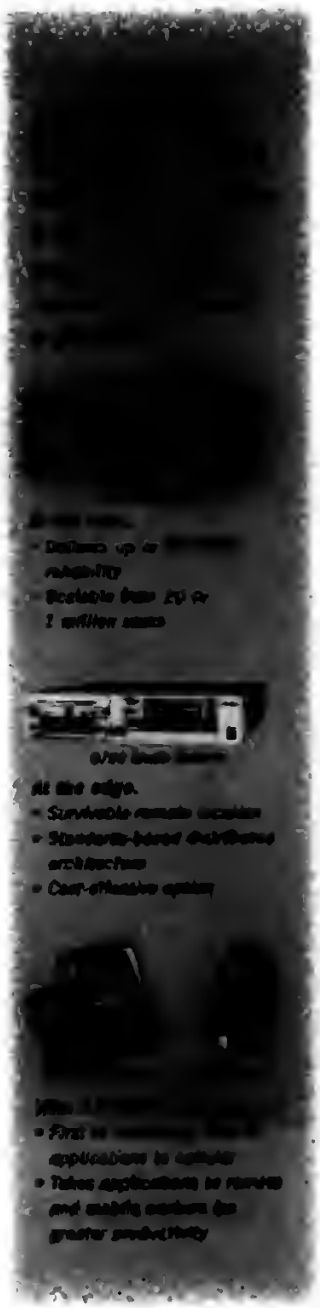
It's good for EMC as long as you stay on the low end. But you didn't stay on the low end with PCs — you moved up to servers and blades and high-end computing. If you look at their product line, there's a pretty good demarcation, when you get into Symmetrix [high-end storage systems] with mainframe software. The question I think is interesting is, "What is a mainframe? What is a supercomputer?" This idea of high-performance clusters could actually be the supercomputer of the future three or five years from now.

How are you going to commoditize the professional services business? That doesn't seem to fit with the model. The professional services area is people-intensive, and it doesn't commoditize or scale like a manufacturing process does. However, there are learned and repeatable tools that can drive costs down. So you'll see us build that business through organic growth, through additional small acquisitions.

Why are you holding off on delivering Itanium II-based systems? Well, it's not a volume product. We like volume products. As soon as there's volume, we're there. To me, the real story at the high end is high-performance clusters, not Itanium II, for now.

You've acknowledged that you're going to get into the PDA market. Will it be a Dell-branded PDA, and when will it be released? Yes [it will be Dell-branded], but we haven't said when, so you'll have to wait.

Will it be a Pocket PC? We haven't made any announcements. But that's a pretty good guess. ▶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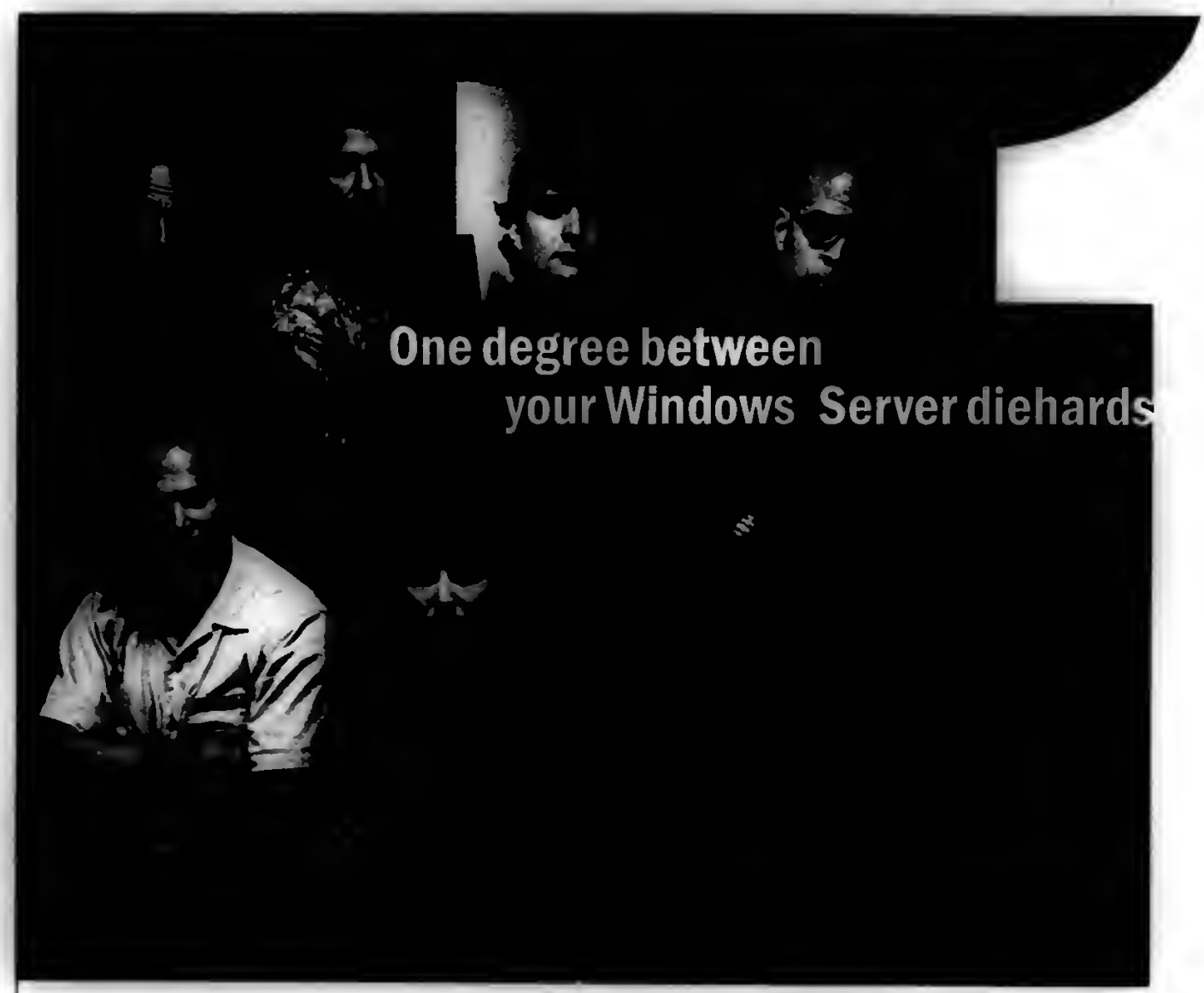

When software quickly eliminates barriers between systems, that's one degree of separation. While you may have one department standardized on one platform, you'll often have another department on a different platform. And since getting everybody to switch to the same platform could cause trouble, it's your job to make everything work together. That's where Microsoft® BizTalk® Server 2002 comes in. BizTalk Server 2002 gives you a library of over 300 adapters for popular applications, technologies, and implementations like EDI using Internet standards like XML and SOAP. In short, it lets you connect all your internal and external systems quickly and cost-efficiently, and nobody gets hurt. That's one degree of separation. That's infrastructure with .NET. Find out how .NET connected software can help you eliminate the barriers between your systems. Go to **microsoft.com/enterprise** Software for the Agile Business.

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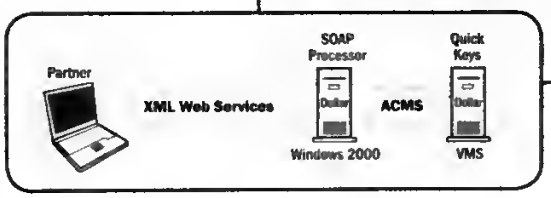

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IBM, HP Exchange Storage APIs In Bid to Boost Interoperability

Meanwhile, they continue to push for storage management standards

BY LUCAS MEARIAN

IBM and Hewlett-Packard Co. last week announced that they have cross-licensed application programming interfaces (API) on their high-end storage arrays and storage network management software, allowing their products to more easily interoperate within storage-area networks.

The API exchange will allow HP OpenView storage management software to manage IBM's TotalStorage Enterprise Storage Server, also known as Shark. Conversely, IBM's storage management software will be able to manage the HP StorageWorks Enterprise Virtual Array and Enterprise Modular Array storage systems.

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Brian Truskowski, chief technology officer for IBM's Storage Systems Group, said that while it's not a "quid pro quo exchange ... we're making available all the API and [command-line interface] information we have on those particular arrays."

Users welcomed the news.

Chris Collins, manager of the Enterprise Architecture Group in Dutch grocer Royal Ahold NV's U.S. operations, said he standardized on IBM to avoid complications with his 62TB SAN.

"I would say it's a good move [that they're exchanging APIs] and very hopeful, but standards are still the Holy Grail," Collins said. He said that he's not considering adding HP equipment in light of the API exchange.

Robert Grey, an analyst at IDC in Framingham, Mass., said the exchange of APIs will allow the two companies to do more easily what both have been striving toward via reverse-engineering.

"Nobody runs a closed shop today. I think it reflects that both of them concluded they'll benefit from supporting each other's products," Grey said.

Truskowski and Mark Sorenson, vice president of HP's storage software division, said both companies are fully committed to pressing forward on emerging standards that will eventually allow all software and hardware to interoperate on a single network through a central management platform.

IBM and HP are members of the Storage Networking Industry Association's Bluefin task force, which is working to present the proposed Bluefin standard to the Internet Engineering Task Force by year's end for approval.

The Bluefin standard, which is based on the Common Information Model (CIM) and Web-Based Enterprise Management standards, supports device discovery, monitoring and management and is aimed at letting IT administrators use a single set of storage management tools to control a mix of software and hardware from different vendors.

Sorenson said the ultimate goal for both companies is to be able to manage their respective storage products through standards, specifically Bluefin and the CIM.

"However, these two companies are very large vendors that have to solve customer problems today and have taken this pragmatic step of utilizing the existing technology available to us — the APIs — with the hope of widespread proliferation of standards in the future and bringing in our entire portfolio at that time," Sorenson said.

IBM and HP are expected to join other major vendors in demonstrating the capabilities of production-level products interoperating via the proposed Bluefin standard at the Storage Networking World conference in Orlando in October.

If the Bluefin draft standard doesn't deploy quickly enough, "then we'll simply extend the agreement to bring in more technologies and products as needed," Sorenson said.

> It reflects that both of them concluded they'll benefit from supporting each other's products.
>
> ROBERT GREY, ANALYST, IDC

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MARYFRAN JOHNSON

Buh-Bye to Geekspeak

BEING something of a geek groupie, I've always taken a fairly benevolent view of IT geekspeak. I hear a lot of it at home and see a certain amount of it in the pages of *Computerworld*. I understand enough of it to be a bit dangerous — or just silly — such as when I make suggestions to our IT department like, "Have you tried rebooting the server?"

maryfran Johnson is editor in chief at *Computerworld*. You can contact her at maryfran_johnson@computerworld.com.

But it's also true that this exclusionary practice of speaking in acronyms, technical terms and industry slang keeps IT at cross-purposes with the business geeks. Or, for that matter, anybody else who feels left out of the conversation once the jargon starts flying.

Two of the eternal verities of geekspeak are that every profession has it, and every special interest group enjoys using it. (*Eternal verities* is probably literary geekspeak). There are fashion geeks who refer to shoe designers by their first names and car geeks who speak reverently about the lift and duration of a cam lobe. There are business geeks who babble in spreadsheet terms and wine geeks who speculate about the degree of "malo" (malolactic fermentation) in a glass of chardonnay. There are even garden geeks who can reel off Latin plant names longer than a daylily stem (which is actually called a "scape," but knowing that gives me away).

So take some comfort that IT folks are far from alone in this behavior. Exacerbating the situation are the vendors and industry blowhards, who collectively crave the opportunity to sound smarter than they are. When they run out of technoterms and ridiculous acronyms, they make up new ones (like renaming HR software as HCM for "human capital management").

Why not just wallow in wide-area geekspeak and let the business types go off in search of a clue? Because it continues to hobble your management career and sabotage support (and funding) for your IT projects, as Kathleen Melymuka makes clear in "Failure to Communicate" (page 44). "Many IT people still talk technical, and until they abandon geekspeak, business will never understand the value of IT," she concludes.

Deryck Jones, a former chief technology officer who now runs his own IT consulting business, saw marked improvement in his career path when he began paying attention to his communication skills. "Somewhere along the road, I stopped alienating those around me," he told us. "I started talking like a real businessman instead of a geek."

Assuming you want to, how to break the technobabble habit? Try the following three-step program:

1. Remain alert for IT code words that have real meaning in English. Remember that kernels mean corn to most people, Java is an island or coffee to most of the world, and open architecture could just as easily refer to a summer house without windows. (No, I don't mean *those* Windows.)

2. Think of your mom (or some suitably clueless significant other) when you're explaining how something technical works or why an IT expenditure will benefit your company. That should send you in search of friendly, familiar words and analogies. ("You see, Mom, UDDI is like a big Yellow Pages for the Internet.")

3. Learn business strategy concepts and buzzwords, then sprinkle them intelligently into your conversations.

Trust me, once you get the hang of it, passing as a business thinker instead of a geekspeaker will be as easy as establishing an error-free, point-to-point connection with low latency and minimum cyclical redundancy checks.

PIMM FOX

Service Keeps Info Clear

IF YOU SUPPLY information services to end users, you probably assume they understand what they're reading. That may not be the case, especially if some of those users aren't native English speakers. But there's a nice little service that can assure your meaning isn't misconstrued.

At Reuters Health, a subsidiary of Reuters Group PLC, Geoff Worton, the vice president of sales and marketing, says language translation was one of the biggest challenges in supplying hundreds of health-related news stories to doctors and clinicians in Japan.

Pimm Fox is a freelance writer in San Francisco. Contact him at pimmfox@earthlink.net.

"The doctors can understand the bulk of every story in English," he says, "but by giving them a link to Japanese-character language definitions, more obscure or difficult-to-comprehend words or phrases are more easily understood."

The doctors simply click on words they wish to have explained, and a pop-up window reveals a high-quality dictionary definition.

Reuters Health, using RichLink technology from Palo Alto, Calif.-based Sentius Corp., sends its news feeds to Sentius, which runs the stories through a matching program to highlight words that have been identified as needing clarification. Sentius then sends the files back to Reuters Health with the hot links embedded in the news stories, all in about 20 minutes.

With the RichLink program running on a production server, space is allocated so that stories are always available for customers to access on demand; users in Japan are pulling down news, rather than having it pushed. "If we pushed it to them, we wouldn't know if they received it," says Worton.

For Reuters Health, the Japanese definitions helped remove many difficul-

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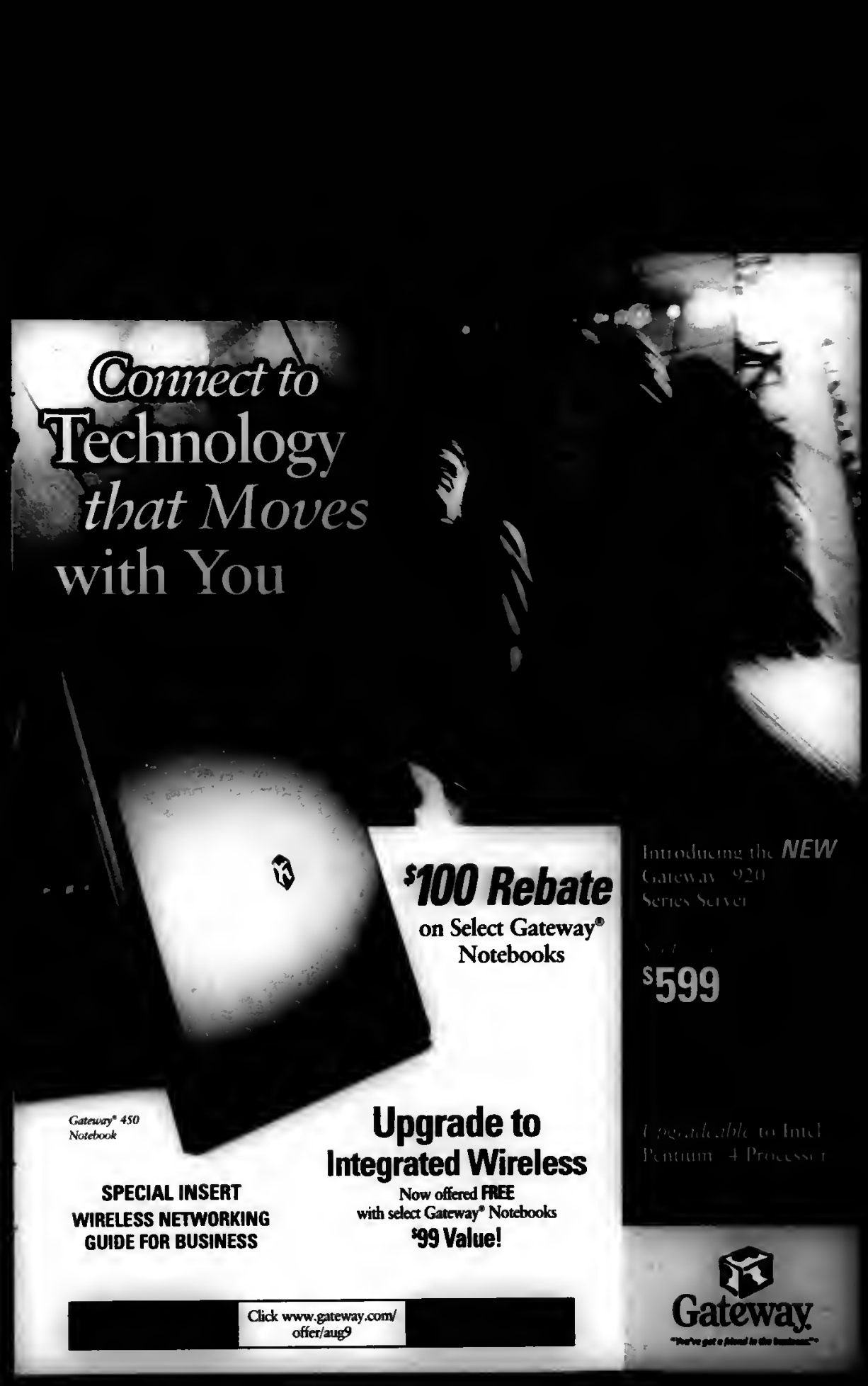
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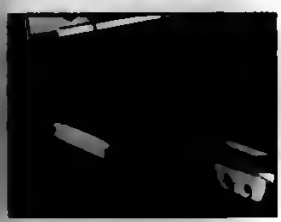

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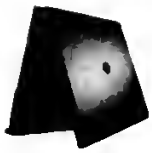

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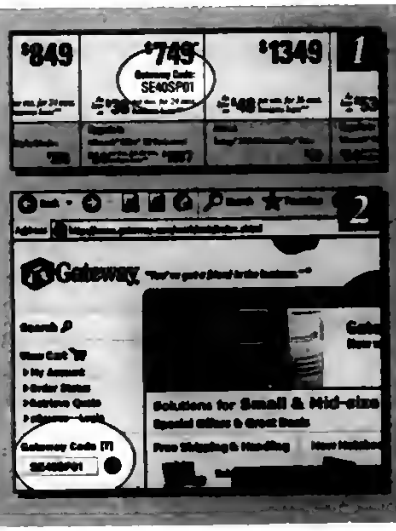

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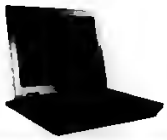
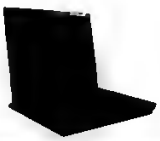
Gateway Notebooks Put Pentium® 4 Power On the Road

COMPUTER SHOPPER

Gateway 200 "tempts a good, basic computer into a lightweight silver package that's priced right."





Standard with integrated wireless

Small Office Value	High Performance, Great Value NEW	Feature-heavy, Lightweight	Ultimate Desktop Replacement	Ultra-thin, Ultra-light
Gateway Solo® 1450SE This feature-laden notebook puts mobile computing in every business' budget.	**Gateway® 400L** High Speed Intel® Pentium® 4 performance at a value price	**Gateway® 450L** Travel light with this sleek and powerful Gateway notebook—just 5.8 pounds.†	**Gateway® 600L** Replace your PC with this blend of Pentium® 4 performance and high-end features.	**Gateway® 200** Speed, versatility and breathtaking design in our ultra-portable notebook system.
Mobile Intel® Celeron® Processor 1.33GHz	Intel® Pentium® 4 Processor 2.0GHz	Intel® Pentium® 4 Processor 1.60C GHz	Mobile Intel® Pentium® 4 Processor 1.80GHz-M	Mobile Intel® Pentium® III Processor-M 933MHz
14.1" XGA TFT Active Matrix Display	14.1" XGA TFT Active Matrix Display	14.1" XGA TFT Active Matrix Display	15" XGA TFT Active Matrix Display	12.1" XGA TFT Active Matrix Display
128MB SDRAM Memory	256MB DDR Memory	256MB DDR Memory	256MB DDR Memory	256MB SDRAM Memory
20GB Ultra ATA Hard Drive	20GB Ultra ATA Hard Drive	20GB Ultra ATA Hard Drive	30GB Ultra ATA Hard Drive	20GB Ultra ATA Hard Drive
Integrated Floppy and 8x DVD-ROM Drives	Integrated Floppy and 8x DVD-ROM Drives	Modular 16x CD-RW Drive	Modular Floppy and CD-RW Drives	Modular Floppy and CD-RW Drives in Docking Base
Microsoft® Windows® XP Home	Microsoft® Windows® XP Home	Microsoft® Windows® XP Home	Microsoft® Windows® XP Professional	Microsoft® Windows® XP Professional
1 Yr Parts and Labor Limited Warranty*	1 Yr Parts and Labor Limited Warranty*	1 Yr Parts and Labor Limited Warranty*	1 Yr Parts and Labor Limited Warranty*	1 Yr Parts and Labor Limited Warranty*
~~$1099~~ **$999** *w/$100 instant rebate* ***	~~$1499~~ **$1399** *w/$100 instant rebate* ***	~~$1499~~ **$1399** *w/$100 instant rebate* *** Gateway Code: S4500L01	~~$1899~~ **$1799** *w/$100 instant rebate* *** Gateway Code: S6000L01	**$1999**
As low as **$35** per mo. for 36 mos. business lease**	As low as **$49** per mo. for 36 mos. business lease**	As low as **$49** per mo. for 36 mos. business lease**	As low as **$63** per mo. for 36 mos. business lease**	As low as **$70** per mo. for 36 mos. business lease**
Upgrade to Microsoft® Windows® XP Professional *For an additional* **$79**	Upgrade to Microsoft® Windows® XP Professional *For an additional* **$79**	Upgrade to Microsoft® Windows® XP Professional *For an additional* **$79**	Upgrade to Microsoft® Office XP Professional **$75** per mo. for 36 mos. business lease** **$2127**	Upgrade to Microsoft® Office XP Professional **$82** per mo. for 36 mos. business lease** **$2327**

TRAVEL TOOLS

Accidental Damage Protection††

The inherent portability of computer notebooks makes them both invaluable and vulnerable business tools. Unlike other computers, they're more susceptible to power surges, food and beverage spills and accidentally being dropped, impacted or mishandled.

Gateway Accidental Damage Protection offers your business financial safeguards against these all-too-common problems. If a covered notebook is accidentally damaged, your Gateway Accidental Damage Protection plan:

- Covers expensive repairs
- Minimizes repair costs while maximizing return on investment
- Ensures speedy repair of a damaged notebook
- Reduces unbudgeted computer expenses

$169 *For standards & your savings*

Click www.gateway.com/offer/aug9

Save $100

Desktops

WORK SMARTER WITH THE RIGHT SOFTWARE

Gateway® systems, combined with essential software applications, improve efficiency and make personnel more productive. Give your staff leading-edge office and financial tools from Microsoft and Intuit®—the perfect complement to your high-performance Gateway desktop PCs.

Microsoft® Office XP Professional

The most sophisticated version of Office ever, Microsoft® Office XP Professional transforms the traditional suite of office tools into an efficient, intuitive, integrated resource for making work easier, faster and more rewarding.

- Optimized standards in Microsoft Word, Microsoft Excel, Microsoft Outlook and PowerPoint®
- Access 2002 - the database storage, access and analysis solution
- Document recovery that lets you save work in the event of an error or system failure

Intuit QuickBooks® 2002

The standard in accounting management software, with the tools a business needs to organize financial data, invoice and collect payment, and organize fiscal data.

QuickBooks Basic features:

- Fast, easy start-up
- Check writing and printing
- Alert reminders

$179 *per user*

QuickBooks Pro adds even more:

- Estimating assistance
- Supports up to 5 simultaneous users
- Online banking and bill payment

$249 *per user*

PC WORLD

June 2002
Gateway® 700L
"General-purpose machine for small to medium businesses and home businesses"

Shown with optional Flat Panel Display

Simply More Powerful. Sharp New Look.

Gateway business desktops give your staff the resources to get more done in less time. Each features a full suite of productivity software, Intel® processing power, network-ready configuration, and quality reliability that reduces calls to the IT department. Add its great new sleek design and Gateway training and support and you've got the ultimate boost for your bottom line.

Choose the Right Desktop	Gateway 300L	Gateway 500L	Gateway 700L
Basic office applications	✔	✔	✔
Frequent Internet usage	✔	✔	✔
High-end 2D and 3D graphics			✔
Spacious data storage capacity			✔
Multimedia	✔	✔	✔
Configure to order	✔	✔	✔
Tool-less design for ease of maintenance	✔	✔	✔

Gateway® PCs use genuine Windows® Operating Systems
www.microsoft.com/piracy/howtotell

Prices and configurations subject to change without notice or obligation. Prices exclude shipping and handling and taxes.
* **Leasing provided by independent leasing companies to qualified commercial customers. Lease payment quoted is FMV lease. Lease terms subject to change without notice or obligation.**
** Exclusions apply. Visit Gateway.com or call 1-800-846-2000 for a free copy of applicable terms & conditions. Not available in all states.
† Limited warranties and service agreements apply; visit gateway.com or call 1-800-846-2000 for a free copy. Technician will be dispatched, if deemed necessary by Gateway, following other troubleshooting methods. On-site service not available in all locations, you may be required to take or send your product to an authorized service location. Gateway will respond within next business day, however, cannot guarantee that your issue will be resolved in a particular time. On-site service excludes mice, keyboards, docking stations, external peripherals and monitors.

Transform Your Office into a Powerhouse

Shown with optional Flat Panel Display

Shown with optional Flat Panel Display

Business Power on a Budget	Affordable All-around Performer	High-end Task Master
Gateway® 300L	**Gateway® 500L**	**Gateway® 700L**
Ideal starter platform for networked businesses that require performance on a budget.	Pentium® 4 power handles memory-intensive applications, publishing and multimedia.	Features high-end graphics and optimal power to take on the most demanding business applications.
Intel® Celeron® 1.40GHz Processor	Intel® Pentium® 4 1.80GHz Processor	Intel® Pentium® 4 1.80GHz Processor
128MB SDRAM and 20GB Hard Drive	128MB DDR SDRAM and 20GB Hard Drive	256MB RDRAM and 40GB 7200rpm Hard Drive
Intel® 3D Graphics and Business Audio	Intel® Extreme Graphics and Business Audio	32MB NVIDIA® GeForce2™ MX200 AGP Graphics and SoundBlaster® AudioPCI™ 128D SoundCard
Integrated 10/100 Ethernet	Integrated 10/100 Ethernet	Integrated 10/100 Ethernet
15" Color Monitor (13.8" Viewable)	15" Color Monitor (13.8" Viewable)	17" Color Monitor (15.9" Viewable)
20x min./48x max. CD-ROM Drive	20x min./48x max. CD-ROM Drive	20x min./48x max. CD-ROM Drive
Microsoft® Windows® XP Professional	Microsoft® Windows® XP Professional	Microsoft® Windows® XP Professional
$599	**$799**	**$1099**
As low as **$30** per mo. for 24 mos. business lease*	**Gateway Code:** S5000L01 As low as **$40** per mo. for 24 mos. business lease*	As low as **$39** per mo. for 36 mos. business lease*
Upgrade to Microsoft® Office XP Professional **$47** per mo. for 24 mos. business lease* **$927**	**Upgrade to** Microsoft® Office XP Professional **$57** per mo. for 24 mos. business lease* **$1127**	**Upgrade to** Microsoft® Office XP Professional **$50** per mo. for 36 mos. business lease* **$1427**

INVESTMENT PROTECTION

Warranty Upgrade

It's protection for your technology investment. Talk to a Gateway Business Solutions Advisor about a 3-year on-site warranty[1] upgrade. For a low per-unit cost, get 24-hour technical support and parts and labor coverage for all your installed systems.

Gateway® 300 Desktop **$119** *per system/3 years*

Gateway® 500 Desktop **$129** *per system/3 years*

Gateway® 700 Desktop **$139** *per system/3 years*

Accidental Damage Protection**

Protect your company against the expense of unexpected repairs to your desktops and notebooks. Whether your systems are damaged by liquid spills, power surges or natural disasters, Accidental Damage Protection insures you against excessive costs, helping you manage your IT budget more effectively.

- Covers expensive repairs due to mishaps
- Guards against unbudgeted expenses
- Reduces repair costs to increase ROI

Starting as low as **$39** *for desktops (3 year coverage)*

Click www.gateway.com/offer/aug9

Gateway

ACCESSORIZE YOUR PC

15" Flat Panel Display Upgrade

Add

- Gateway® 300L **$250**
- Gateway® 500L **$250**
- Gateway® 700L **$250**

HP® LaserJet® 2200D Printer

$799

HP ScanJet 5490 CXI

$399

HP Officejet® G85 XI

$399

Intel PRO/ Wireless USB Adapter

$89

Personalized Help Desk

The tech-support solution that can be tailored to your company's specific needs with a private PIN # for custom service. Personalized Help Desk will eliminate the troubleshooting hassle for:

- Gateway® & non-Gateway PCs
- Printers, scanners, handhelds and more
- Software applications including Microsoft® Office, QuickBooks and Adobe®

Starting as low as **$24** */system/year*

Upgrade ... Save!

$79

E-Series

Gateway® E-4000 Special
Shown with optional monitor

NETWORK PLANNING, START TO FINISH

Gateway will work with you to assess your networking and business needs. You'll receive a custom network design from a local Gateway Network Solution Provider, along with a detailed blueprint for purchasing, installing, implementing and supporting your network.

Consultation includes:

- Evaluation of current hardware and software
- Precise plans for cabling, data migration, software installation, back-ups and more
- Hardware and software recommendations
- Total cost estimates

Gateway Network Planning ensures that your network investment truly works for your growing business.

IS YOUR BUSINESS SECURE?

REALIZE YOUR RISK WITH A GATEWAY SECURITY AUDIT[1]

According to the Computer Security Institute[2], 85% of businesses detected computer security breaches and 64% suffered financial losses as a result. Is your business vulnerable? A Gateway Security Audit[3] analyzes your network security on-site including five workstations and one server.

Our security assessment includes:

- General security strategy
- Physical system security and theft prevention
- Data security and protection

You'll get a detailed report of your security status, a list of potential security risks, and prioritized recommendations and guidelines for improving your overall security.

Starting at

$199 *during business hours*

$299 *after business hours*

Work Smarter, Stronger & Faster

Gateway's new E-Series network-optimized desktops are more powerful than ever, with advanced Intel® processing technology, increased memory, and enhanced features to deliver optimal network performance and off-the-charts productivity. We also offer systems that conserve space and lower your energy bills. Aggressively priced for the greatest performance and best value, our newest managed PCs continue to deliver the quality, reliability and versatility you depend on to meet your business goals and maximize your return on investment.

Choose the Right Desktop	Gateway E-2000	Gateway E-4000	Gateway E-4000	Gateway Profile 4
Long product lifecycle	✔	✔	✔	✔
Basic office applications & Internet usage	✔	✔	✔	✔
Optimized for network environments	✔	✔	✔	✔
Space-saver	✔	✔		✔
Tool-less design for ease of maintenance	✔	✔	✔	✔
Managed transitions	✔	✔	✔	✔
Configure to order	✔	✔	✔	✔
High-end 2D and 3D graphics and multimedia			✔	✔
Large data storage capacity			✔	

Gateway® PCs use genuine Windows® Operating Systems
www.microsoft.com/piracy/howtotell

* Prices and configurations subject to change without notice or obligation. Prices exclude shipping and handling and taxes. Limited warranties and service agreements apply; visit gateway.com or call 1-800-846-2000 for a free copy. Technician will be dispatched, if deemed necessary by Gateway, following other troubleshooting methods. On-site service not available in all locations, you may be required to take or send your product to an authorized service location. On-site service excludes mice, keyboards, docking stations, external peripherals and monitors.

** **Leasing provided by independent leasing companies to qualified commercial customers. Lease payment quoted is FMV lease. Lease terms subject to change without notice or obligation.**

*** Microsoft Office Small Business Edition free with system purchase. Not valid with any other offers or discounts. Offer expires 9/1/02

† Not valid with any other offers or discounts. Offer expires 9/30/02.

‡ Computer Security Institute, "2001 Computer Crime and Security Survey," March 2001

◊ Not valid with any other offers or discounts. Offer expires 9/29/02.

™ Limited-time offer.

The Next Level of Network-optimized Desktops

Gateway

Shown with optional monitor

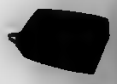
Shown with optional Flat Panel Display

COMING SOON

Space-saving Solid Value	Mainstream Performer (Limited Time Offer)	High-powered Performance	All-in-one Space Saving
Gateway® E-6000 Designed for standard networked applications.	**Gateway® E-4800 Special** Perfect for multitasking and high-demand applications	**Gateway® E-6000** Ideal performance for desktop publishing, multimedia and eBusiness.	**Gateway Profile™ 4L** A stylish all-in-one system with a flat panel display.
Intel® Celeron® 1.80GHz Processor	Intel® Pentium® 4 1.80GHz Processor	Intel® Pentium® 4 2.0GHz Processor	Intel® Pentium® 4 1.80GHz Processor
128MB DDR SDRAM	128MB DDR SDRAM	256MB RDRAM	128MB DDR SDRAM
20GB Ultra ATA Hard Drive	20GB Ultra ATA Hard Drive	40GB 7200rpm Hard Drive	20GB 7200rpm Hard Drive
Intel® Extreme Graphics	Intel® Extreme Graphics	32MB NVIDIA® GeForce2™ MX200 AGP Graphics	32MB NVIDIA® GeForce2™ MX400 AGP Graphics
Integrated Audio & Intel® 10/100 Ethernet	Integrated Audio & Intel® 10/100 Ethernet	Integrated Intel® 10/100 Ethernet	
15" Color Monitor (13.8" Viewable)	*Monitor sold separately*	17" Color Monitor (15.9" Viewable)	15" XGA TFT Active Matrix Display
Microsoft® Windows® XP Professional; Microsoft® Office Small Business Edition***	Microsoft® Windows® XP Professional	Microsoft® Windows® XP Professional; Microsoft® Office Small Business Edition***	Microsoft® Windows® XP Professional
3 Yr Parts and Labor Limited Warranty with 3 Yr On-site Service*	3 Yr Parts and Labor Limited Warranty with 3 Yr On-site Service*	3 Yr Parts and Labor Limited Warranty with 3 Yr On-site Service*	3 Yr Parts and Labor Limited Warranty with 3 Yr On-site Service*
$849 As low as $43 per mo. for 24 mos. business lease**	**$749**" Gateway Code: SE40SP01 As low as $38 per mo. for 24 mos. business lease**	**$1349** As low as $48 per mo. for 36 mos. business lease**	**$1499** As low as $53 per mo. for 36 mos. business lease**
Upgrade to 15" Flat Panel Display Monitor $290	Upgrade to Microsoft® Office XP Professional $54 per mo. for 24 mos. business lease** $1077	Add on Iomega® 250MB Internal Zip® Drive® $79	Upgrade to Microsoft® Office XP Professional $64 per mo. for 36 mos. business lease** $1827

ACCESSORIZE YOUR PC

Upgrade the Gateway E-4800 Special to include:

15" Color Monitor (13.8" viewable) $180	15" Flat Panel Display $490
External Iomega® 250MB Zip® Drive $149	Canon® ZR45MC Digital Video Camera $100 off when purchased with a new PC** $699
HP® LaserJet® 2200dn Network Printer $1099	Belkin® 500 UPS  $79
Canon S30 Digital Camera $499	Epson® 51c Projector $1699

ONLINE LEARNING — CONVENIENT AND EFFECTIVE

Gateway Learning

Office Productivity Online Learning Subscription

Bring real solutions to real desktop application needs. Master the productivity skills required in today's business environment.

- Customize document templates
- Create custom databases
- Create and use Pivot Tables
- Insert graphics and charts into presentations
- Customize mail merges and label creation

Online Learning* as low as $99/user/year

Business Productivity and Desktop Publishing Online Learning Subscription

The ultimate online learning tool—learn everything from common desktop applications to desktop publishing. Master essential software skills that help your business run more smoothly and productively.

- Create high-quality publications such as brochures and newsletters
- Learn Adobe Photoshop, Pagemaker, Illustrator, Indesign and more
- Learn Macromedia Director, Dreamweaver and Flash

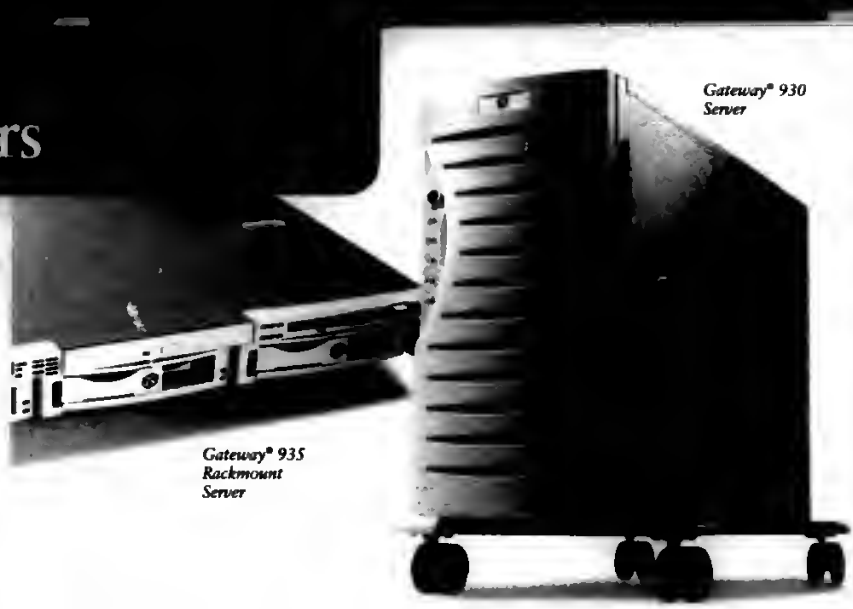
Online Learning* as low as $199/user/year

Click www.gateway.com/offer/aug9

Performance and Value!

749

Servers



Gateway® 930 Server

Gateway® 935 Rackmount Server

Depend on Gateway for top-quality products, reliable support from experienced technicians, and consulting and project management that make the networking process easier and more cost-effective. You'll benefit from our customer "safety net," which includes:

- High-quality servers at affordable prices
- A free network planning and design consultation with a Gateway networking engineer
- Single-point access to networking assistance and IT training
- 24/7 tech support from the Gateway Network Support Center staff of Microsoft®- and Novell®-certified engineers
- On-site service and standard limited warranty protection* for your server investment

ADVANCED NETWORK TRAINING FOR IT PROFESSIONALS

Gateway Online Learning' helps your IT staff develop the elite skills to keep your network running at its best.

IT Network Technician
Course prepares your IT staff for CompTIA A+, Server +, Network +, i-Net+ certifications

IT Network Administrator
Course prepares your IT staff for CNA, CCNA, CCNP, MCSA, MCAD certifications

IT Network Engineer
Course prepares your IT staff for MCSE, CNE, CCIE certifications

Starting at **$299** */user/year*

Connect Your Business to the Power of Gateway

It's a critical decision: which servers will run your network? You need speed, storage capacity, expandability, the ability to run demanding applications, and reliability. That's why businesses like yours turn to Gateway for high performance business servers. Whether you need the basics like e-mail and file-sharing, or advanced features for high performance and remote access, Gateway® tower and rackmount servers have you covered.

Choose the Right Server	Gateway 910	Gateway 920	Gateway 930	Gateway 935
First server	✔	✔		
Easy setup and configurability	✔	✔	✔	✔
Ultimate value and affordability	✔	✔		
Large internal capacity for extra hard drives and memory	✔	✔	✔	✔
File, print, Internet/e-mail sharing	✔	✔	✔	✔
Available with optional SCSI hard drive	✔	✔		
24/7 mission critical networks			✔	✔
Processor and storage intensive applications			✔	✔
External storage expansion capabilities			✔	✔
Space-saving, server consolidation				✔
Web applications and hosting				✔

Prices and configurations subject to change without notice or obligation. Prices exclude shipping and handling and taxes.

* Limited warranties and service agreements apply; visit gateway.com or call 1-800-846-2000 for a free copy. Technician will be dispatched, if deemed necessary by Gateway, following other troubleshooting methods. On-site service not available in all locations, you may be required to take or send your product to an authorized service location. Gateway will respond within next business day, however, cannot guarantee that your issue will be resolved in a particular time. On-site service excludes mice, keyboards, docking stations, external peripherals and monitors.

** **Leasing provided by independent leasing companies to qualified commercial customers. Lease payment quoted is FMV lease. Lease terms subject to change without notice or obligation.**

† FCC Class A products may not be sold for home use.

Reliable Networks Start with Gateway Servers

Gateway

Value	General Purpose	Workgroup	Space Saver
Gateway® 910 Series An easy-to-install, budget-friendly server designed for small businesses new to networking.	**Gateway® 920 Series** An entry-level Pentium® 4 server for basic file/print sharing and Internet access.	**Gateway® 930 Series** Higher-grade performance for high-traffic networks, workgroups, and demanding networked software.	**Gateway® 940 Series** A compact rackmount server perfect for executing high-end applications where space is at a premium.
Intel® Celeron® Processor 1.40GHz with 128K full speed L2 Cache (Upgradeable to a Single 1.33GHz Pentium® III with 256K L2 Cache)	Intel® Celeron® Processor 1.70GHz with 128K full speed L2 Cache (Upgradeable up to a Single 2.40GHz Intel® Pentium® 4 with 512K L2 Cache)	Intel® Pentium® III Processor 1.13GHz with 512K Cache (Upgradeable to Dual 1.40GHz with 512K Cache)	Intel® Pentium® III Processor 1.13GHz with 512K L2 Cache (Upgradeable to Dual 1.40GHz with 512K Cache)
64-bit PCI Technology	64-bit PCI Technology	64-bit PCI Technology	64-bit PCI Technology
128MB PC133 ECC SDRAM (Expandable to 2GB)	128MB PC1600 ECC DDR SDRAM (Expandable to 4GB)	256MB PC133 SDRAM (Expandable to 4GB)	256MB PC133 SDRAM (Expandable to 4GB)
Single 20GB ATA 100 5400rpm IDE Hard Drive (Upgradeable to three 120GB Hard Drives)	Single 40GB ATA 100 7200rpm IDE Hard Drive (Upgradeable to three 120GB Hard Drives)	18GB Ultra 160 SCSI SCA 10Krpm Hard Drive (Upgradeable to six 73GB Hot-swap Hard Drives)	18GB Ultra 160 SCSI SCA 10Krpm Hard Drive (Upgradeable to three 73GB Hot-swap Hard Drives)
Integrated Dual-channel ATA 100 IDE Controller	Integrated Dual-channel ATA 100 IDE Controller	Dual-channel Ultra 160 SCSI	Integrated Single-channel Ultra 160 SCSI
HP® OpenView™ ManageX Event Manager	HP® OpenView™ ManageX Event Manager	HP® OpenView™ ManageX Event Manager	HP® OpenView™ ManageX Event Manager
FCC Class B Compliance	FCC Class B Compliance	FCC Class A Compliance*	FCC Class A Compliance*
$499	**$599**	**$1099**	**$1099**
As low as $25 per mo. for 24 mos. business lease**	As low as $30 per mo. for 24 mos. business lease**	As low as $39 per mo. for 36 mos. business lease**	As low as $39 per mo. for 36 mos. business lease**

Multiple server operating systems available through Gateway Custom Integration Solutions. Call your Gateway Business Solutions Advisor for more information.

SERVER UPGRADES AND ADD-ONS

As your business expands, so can your servers' capabilities—simply by upgrading in a variety of cost-effective ways that include:

Processors
Add an additional processor to increase a Gateway dual processor-ready server's bandwidth. *Call your Business Solutions Advisor for details on processor upgrades.*

Memory
Add memory to improve speed and overall performance.

256MB PC133 ECC SDRAM — $199

Hard Drives
Increase hard drive space to satisfy expanding databases and storage needs.

18GB Hot-swap Hard Drive – 10Krpm spindle speed — $239

36GB Hot-swap Hard Drive – 10Krpm spindle speed — $469

73GB Hot-swap Hard Drive – 10Krpm spindle speed — $949

RAID Controller
RAID allows the server to continue running after a hard drive failure, and facilitates increased up time, availability and performance.

ADAC 493 Array Controller
- Dual-channel 64-bit RAID Controller
- 64MB memory module
- Enables hot-swap capabilities of hard drives

$599

GATEWAY SERVERS RUN ON MICROSOFT® SOFTWARE

Gateway offers Microsoft operating systems for one simple reason—they bring out the best in Gateway servers, desktops and notebooks.

Microsoft Windows® 2000 Server

A scalable network operating system designed to meet the evolving needs of small and large companies. It's a high-performance network backbone that helps you share files and peripherals, access server-based business applications, and configure, deploy and manage your network faster and easier than ever before.

Microsoft Small Business Server 2000

Custom-designed to add the power of networking to growing companies with up to 50 seats. Microsoft Small Business Server 2000 is a third-generation network management suite which integrates server based solutions for e-mail, Internet fax, database management, access to server-based software applications, and shared Internet access.

Click www.gateway.com/offer/aug9

Ready to Go *Wireless?*

Networking Services

SERVING LOCAL BUSINESSES

"Within one hour of my first call to Gateway, a local sales representative was in my office, evaluating my needs and developing a plan for us. Gateway immediately earned my trust, and I know I can continue to rely on them to provide me with additional guidance on my IT requirements."

—Lynette Helling, President

Interim Health Care
Lincoln, Nebraska

"Space Hardware Optimization Technology (SHOT™) develops key equipment and instruments for the space industry using state-of-the-art Gateway™ computers and servers. Gateway provided us with one of the more valuable tools we needed to develop critical instruments that biotechnology and biomedical researchers use in space and on Earth. SHOT successfully competes with some of the biggest names in the space industry, and we rely on Gateway for the equipment and services we need to remain competitive."

—Ken Barton, Facilities Manager and Network Administrator

Space Hardware Optimization Technology, Inc.

Before you set up a new network or upgrade your current network, call for an appointment with your local Gateway Business Solutions Advisor

Achieve End-to-End Network Productivity

Whether you're a growing company looking to establish your first business network or you have an existing network that needs to be upgraded, Gateway will develop a solution that meets your business needs. We also offer a full range of networking support services for businesses with limited IT staff as well as larger organizations that need to supplement internal IT resources. Your local Network Solution Provider (NSP) can provide on-site technology assistance, network hardware installation, and troubleshooting backed by 24/7 technical phone support from the Gateway Network Support Center team of Microsoft®- and Novell®-certified engineers.

PLANNING

Network consultation and assessment from a Gateway NSP, who will:

- Discuss your business, industry and objectives
- Survey your work site and advise your staff
- Evaluate your current hardware and software
- Develop a custom network blueprint, including recommendations for hardware, software, implementation plans, plus time and cost estimates

Call to set up an appointment

INSTALLATION

Your Gateway NSP can manage installation of your wired or wireless network, including:

- Cabling and wiring
- Server hardware setup
- Internet and/or wireless access setup
- Connecting interfaces and hubs
- Data transfer to new PCs
- Configuring network settings and software installation
- Setting up shared drives, printers and other network devices

Starting at **$249**

SUPPORT SERVICES

Responsive local technicians team with around-the-clock phone support, including:

- Access to Gateway's Network Support Center team of Microsoft- and Novell®-certified engineers
- Next day and 4-hour onsite service• options for Gateway® servers
- Remote IT services including Network OS support and system management
- Annual network reassessment

Starting at **$279**

Prices and configurations subject to change without notice or obligation. Prices exclude shipping and handling and taxes.

• Limited warranties and service agreements apply; visit gateway.com or call 1-800-846-2000 for a free copy. Gateway will attempt to resolve your issue remotely. If this is not possible, Gateway will dispatch a technician. Gateway cannot guarantee that your issue will be resolved in any particular time. 4-hour dispatch service is not available in all locations. See agreements for specific terms and limitations.

Your Single Source for Total Network Support

Problems with your network mean downtime and lost revenues. Gateway offers services to minimize downtime and ensure that your network is secure against invasion and data theft. Think of us as your single source for networking services and support.

Four-hour On-site Response Service

For businesses that absolutely cannot afford downtime, Four-hour On-site Response Service* ensures quick recovery if your network server experiences an outage. A Gateway service engineer will be dispatched immediately and arrive at your office within 4 hours of your initial call with the required parts for service.

- Minimized network downtime
- The highest level of technical support
- Diagnostic services available

Starting at **$279**

Network Operating System Support

If you're already setting up your own servers, our Network Operating System (NOS) Support can help you through the rough spots, by phone or via the Internet.

- Dedicated trouble-shooting support for NOS-related issues
- Unlimited 24/7 phone support from Microsoft- and Novell®-certified engineers
- Multiple site support

Call for a custom quote

System Management Services

Once your network is up and running, partner with Gateway to manage it and maximize productivity. We provide round-the-clock help with:

- Unlimited direct line access with priority escalation
- Support for one server and 25 workstations
- Support for single NOS (on Gateway hardware)
- Remote assisted IT services
- Annual network consultation

Starting at **$1799**

Advanced Training for IT Staff

Gateway offers comprehensive training solutions for all your IT personnel. Now, access an online library that helps network technicians and advanced-level administrators hone their skills and acquire new ones—so they can help strengthen your bottom line.

IT Network Administrator Online Learning[1]

Developed for IT professionals preparing for IS/IT administrative certifications including CNA, MCSA, MCAD, CCNA and CCNP. Ideal for advanced IT personnel seeking the skills to implement overall business technology solutions.

- Setting up user workstations
- Managing networked users and resources
- Installing and configuring print servers
- Performing routine software maintenance
- Automating network access
- Monitoring network performance
- Installing and configuring LAN, WAN and dial access services
- Courses in Linux also available

$799 user/year

IT Network Engineer Online Learning[1]

Designed for advanced IT professionals preparing for IS/IT industry certifications including MCSE, CCIE and CNE. Helps IT staff develop all the skills needed to implement, maintain and optimize a corporate network.

- Planning, installing, configuring, troubleshooting and upgrading networks
- Building networks using TCP/IP protocol
- Building Internet infrastructures
- Central software upgrades to servers and clients
- Implementing Novell Directory Services eDirectory

$999 user/year

Click www.gateway.com/offer/aug9

Gateway

MAXIMIZE YOUR NETWORK

Gateway® E-4000 Special

- Intel® Pentium® 4 1.80GHz Processor
- 128MB DDR SDRAM
- 20GB Ultra ATA Hard Drive
- Microsoft® Windows® XP Professional

Starting at only **$749**

Gateway® E-6000

- Intel® Pentium® 4 2.0GHz Processor
- 256MB RDRAM
- 40GB 7200rpm Hard Drive
- Microsoft® Windows® XP Professional

Starting at only **$1349**

Is Your Business Security *at* Risk?

$199

Technology Resources

Gateway is Your Guide to Better Business Technology

Look to Gateway for fast, easy ways to make the most of the technology in your workplace with free, comprehensive guides to the solutions you need. Gateway can help you choose the right technology for your business, build effective networks, ensure your mobile employees have the tools to stay in touch, and much more. From productivity-boosting computers and networking systems to services and support that keep efficiency high and costs low, Gateway keeps your business going strong.

Mobile Solutions Guide

Every business has its own mobile technology needs. Choose the notebooks, wireless networking, accessories and services that best fit yours. Gateway shows you how, with mobile solutions presented in practical, real-world scenarios that reflect the needs of your people, your business and your bottom line.

Networking Solutions Guide

From network planning to technology refresh, Gateway gives you one point of contact to manage every stage of your network lifecycle. Learn how our end-to-end IT support, consulting and services can optimize your network, boost business performance, and maximize return on investment.

Network Management Guide

Your network is your business communication backbone—so make it as powerful and reliable as possible. Learn how the new network-optimized Gateway® E-Series desktops combine flexible configurations and reliable stability to maximize productivity, minimize cost and reduce total cost of ownership.

Notebook Technology Planning Guide

Turn your technology investment into a catalyst for greater business success. Gateway makes selecting the right business notebooks easy, with clear, concise information about form factors and screen sizes, expandability options, weight, battery life, mobile support services, and more.

Business Solutions Guide

There has never been a better time to leverage technology as a strategic tool for your business. Our complete technology solutions create the right mix of hardware, software, support services and extras such as customized training and flexible financing to keep you ahead of the competition. From our performance notebooks, desktop PCs and mission-critical servers to wireless networking and eBusiness services, Gateway builds the perfect business solutions.

Business E-mail Newsletter

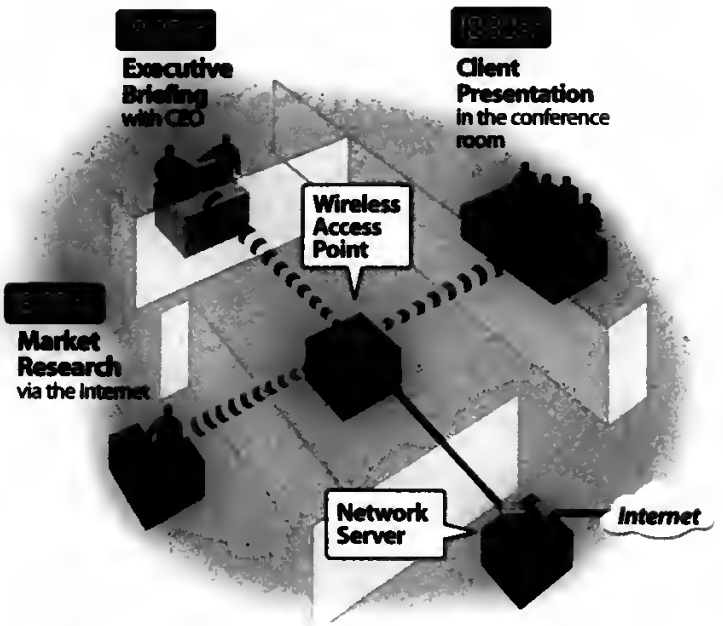
Keep up-to-date on the latest technology products and services designed to help build your business. Get practical tips for saving time and enhancing productivity, find out about special offers and stay in touch with business trends. We deliver it all directly to your in-box—and it's free.

Start building a stronger business today!
Visit www.gateway.com/offer/bizguide and download your FREE technology resource guides from Gateway or sign up for Gateway's e-mail newsletters.

Expanding Business

Networking

How a *Wireless Network* Works



The Wireless Workplace

All Gateway wireless solutions utilize the concept of a Wireless Local Area Network (WLAN). In a wireless networking design, strategically placed "Access Points" use radio waves (instead of cables) to transmit data between a network server and any office desktops, notebooks and handheld PCs that are equipped with wireless devices. To ensure optimum system reliability, compatibility and security, Gateway uses advanced Intel® WLAN components that comply with all Wi-Fi5 (802.11a) and Wi-Fi (802.11b) standards. While both of these WLAN standards offer specific advantages, the overall system performance of a Gateway Wi-Fi5 WLAN offers approximately five times the performance of Wi-Fi networks.

How Wireless Networking Benefits Your Bottom Line

Standards aside, wireless networking offers real solutions for real-life business problems. You may have heard how wireless solutions are already helping other businesses like yours in many important ways such as significantly reducing the costs of installing and maintaining new hard-wired networks or expanding existing ones. Equally important, by using Gateway wireless networking to cost-effectively expand connectivity throughout their facilities, these companies are also achieving greater productivity. And a Gateway wireless network isn't just for large companies. Businesses of every size benefit. From start to finish, the bottom line is a greater return on your network investment.

[1] Range varies from approximately 165 to 1750 feet, depending upon multiple variables.

Why Gateway is the *Wireless Solution* for so Many Businesses

Gateway wireless solutions don't just expand your existing computer network, they free employees to communicate, access data, and print from virtually anywhere[†] in the office. Other typical benefits include:

- **Substantial Savings**—Quickly expand your network while avoiding the high cost, clutter and time required to install cables through walls, ceilings and floors.
- **Increased Productivity**—Keep on-the-go employees connected with access to the network, documents, the Internet, e-mail and more from anywhere[†] in your office.
- **Greater Security**—Gateway utilizes Intel® wireless networking components that include firewall protection to block intruders and powerful data encryption software to shield data transmissions.
- **Easy Network Management**—Network set-up, maintenance and management activities are quick and easy, thanks to powerful Intel® PROSet Wireless Networking software.
- **Easy Installation**—Gateway can assist you—starting with a complimentary consultation—with system installation and support. Better still, Gateway's notebooks are available with a built-in wireless networking capability.

Which Wireless Networking Solution Fits Your Business?

Regardless of the size of your company, Gateway wireless networking can be used to solve a wide range of common networking problems. The increased freedom, enhanced connectivity and cost savings that wireless networking provides make it the ideal solution for almost any networking problem—large or small, permanent or temporary.

Clear up network traffic jams. Your network is strangling your business. You have too many users. Need more bandwidth for large data, audio, graphics and video files. Your IT staff can't keep up with the changes they need to make as project work groups form, move or dissolve. Productivity is falling.	Install an 802.11a WLAN using Intel® PRO/Wireless 5000 LAN products. With up to 54Mbps throughput and continuous network access, 802.11a technology provides increased productivity.
Add WLAN connections to improve service and cut costs. You want to give real-time access to messages, schedules, and other resources on your network to several thousand people—employees or attendees at an event. They need uninterrupted access to these resources through handhelds or notebook PCs as they move between various buildings. You want to deploy this access quickly and at low cost.	Install an 802.11b WLAN using Intel® PRO/Wireless 2011B components. Network compatibility is assured. And Intel® PROSet software makes the entire job easier.
Create a network with the best of both WLAN worlds. You've outgrown your 802.11b WLAN. You need to extend it to your new building without breaking your budget. At the same time, your engineering department needs a WLAN with greater bandwidth and speed.	Set up an 802.11a wireless network using Intel® PRO/Wireless 5000 LAN products for high-speed needs. Add Intel® PRO/Wireless 2011B LAN access points and adapters to link your existing 802.11b WLAN. And install dual-mode 802.11a/802.11b Intel® PRO/Wireless 5000 LAN access points so everyone has mobile access to your network without sacrificing quality.

Call 1.800.555.2083

Come in to your local Gateway® store.

Gateway

The Wireless Way to Get More Done

As your business expands, keeping everyone connected becomes a growing need. Fortunately, Gateway makes it easy to provide powerful, cost-effective WLANs that allow your company to achieve and maintain flexible connectivity. Expand an existing network. Create a whole new network. Establish a temporary worksite or network. Deliver network connectivity to a hard-to-reach site. Even provide continuous connectivity for employees who are on-the-move within your facility.

Benefits for Business Managers

Regardless of the size of your facility, Gateway wireless networking will allow you to:

- Increase productivity through better connectivity
- Save time and money versus expanding a hard-wired network
- Keep on-the-go employees connected throughout your facility
- Improve networking security

Benefits for IT Professionals

Gateway wireless networking provides IT professionals with the freedom and flexibility to:

- Quickly, easily and cost-effectively expand a network
- Efficiently create and manage a new network
- Easily integrate Gateway WLANs into hard-wired networks
- Provide gateway security via firewall and data encryption technologies

Access Points

Intel® Wireless Base Station

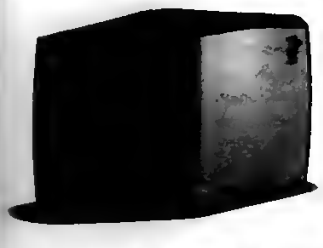
Fast Wireless Connectivity for Small Business

An economical base station ideal for small offices providing basic wireless networking and Internet access for up to 16 users.

Intel® PRO/Wireless 2011B

Enterprise-caliber Wireless Performance for Medium to Large Companies

Roaming capability and support for up to 30-60 users. Ideal for growing companies that want to extend wireless connectivity to multiple buildings.



Intel® PRO/Wireless 5000 Dual-Band

Dual-Band Wireless LAN Wi-Fi5 (802.11a) and Wi-Fi (802.11b) Access Point for Medium to Large Companies*

Ethernet 10/100 LAN support with dual wireless LAN architecture and highest security for up to 64 users.

USB Adapter

Network your desktop PCs in seconds

USB adapter links USB-equipped desktop PCs to wireless network access points Wi-Fi (802.11b).

- Plug-and-play, installs in seconds
- Data speeds up to 11Mbps
- Supports highest level of security (128-bit encryption)

Starting at $89

Prices and configurations subject to change without notice or obligation. Prices exclude shipping and handling and taxes.

* Intel PRO/Wireless 5000 Dual-Band pending Wi-Fi certification.

** This item currently only available through the Gateway Accessory Store—www.gateway.com/accessories.

Gateway

■ 100% IEEE Wi-Fi (802.11b) compliant/ Wi-Fi certified	Ensures compatibility with cross-vendor Wi-Fi (802.11b) products (Wi-Fi Certification)	
■ Combines access point, router and firewall	Saves money and space with compact design	
■ 128, 64 and 0-bit WEP (Wired Equivalency Privacy) encryption with VPN compatibility	Protects data transmissions from unauthorized access with the highest level of security available	
■ Data rates up to 11Mbps @ 100 f-et	Provides quick connectivity to network resources	189
■ Supports Internet access for multiple users	Allows up to 16 simultaneous users	
■ 100% IEEE Wi-Fi (802.11b) compliant/ Wi-Fi certified	Ensures compatibility with cross-vendor Wi-Fi (802.11b) products	
■ 128, 64 and 0-bit WEP (Wired Equivalency Privacy) encryption with VPN compatibility, 802.1x standard	Protects data transmissions from unauthorized access with the highest level of security available	
■ Features embedded Web browser	Makes configuration and management easy	
■ Fast 11Mbps connectivity	Provides quick connectivity to network resources	
■ Specialty antenna support and bridging	Allows wireless connections to multiple buildings	
■ 100% IEEE Wi-Fi (802.11b) compliant	Ensures compatibility with cross-vendor Wi-Fi5 (802.11a) and Wi-Fi (802.11b) products	
■ Supports both Wi-Fi5 (802.11a) and Wi-Fi (802.11b) clients simultaneously	Provides a bridge linking both standards and support of up to 64 users per wireless LAN	
■ Fast 54Mbps connectivity	Five times faster than Wi-Fi (802.11b) for greater oetwork capacity and performance	
■ 128, 64 and 0-bit WEP (Wired Equivalency Privacy) encryption with VPN compatibility, 802.1x standard	Protects data transmissions from unauthorized access with the highest level of security available	
■ 8 non-overlapping channels Wi-Fi5 (802.11a)	Provides greater bandwidth capacity	
■ Full driver support for leading operating systems	Compatible with Microsoft® Windows® XP, 2000 and 98SE	599

PC Cards

Network your notebook and handheld PCs

Type II PC Card links notebook and handheld PCs to wireless network access poiots Wi-Fi (802.11b).

- Plug-and-play, installs easily
- Data speeds up to 11Mbps
- Supports highest level of security (128-bit encryption, 802.1x standard)

Starting at $89

Network your notebook PCs for high-performance

PCMCIA-type CardBus Adapter links notebook PCs to high-performance wireless network access points Wi-Fi5 (802.11a).

- Plug-and-play, installs easily
- Data speeds up to 54Mbps
- Supports highest level of security (128-bit encryption, 802.1x standard)

Starting at $149.95**

Call 1.800.555.2083

Come in to your local Gateway® store.

Gateway *Notebooks Empower* Wireless Productivity

When you equip your team with Gateway notebooks and available wireless access, you give them the power to be even more productive on-the-go than they are at their desks.

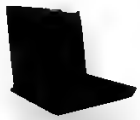
Gateway Solo® 1450
This feature-laden notebook puts mobile computing in every business' budget.

Starting at $1099

Gateway® 400
All of the performance of a Pentium® 4 Processor at a cost that's kind on your budget.

Starting at $1499

Gateway® 450
Travel light with this sleek and powerful Pentium® 4-driven performer.



Starting at $1499

Gateway® 600
Replace your PC with this blend of Mobile Intel® Pentium® 4 Processor-M performance and advanced features.

Starting at $1899

Gateway® 200
Speed, versatility and superb design define our ultra-portable notebook system.

Starting at $1999

Power Up Your Wireless Network with Gateway *Servers*

A server is the heart of your network. So you want all the performance, storage capacity, expandability and reliability your budget will allow. In short, you want the superior value and increased productivity Gateway servers have been serving up for years.

Gateway® 910
An easy-to-install, budget-friendly server designed for small businesses new to networking.

Starting at $499

Gateway® 920
An entry-level Pentium® 4 for basic file/print sharing and Internet access.

Starting at $599

Gateway® 930
Higher-grade performance for high-traffic networks and workgroups.

Starting at $1099

Gateway® 935
Space-saving rackmount server perfect for powering high-end applications.

Starting at $1099

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Gateway

Get Help Creating a Wireless Workplace

Gateway offers a FREE** Wireless Networking Consultation, which includes evaluating your site, discussing your wireless networking objectives and the technology required, plus providing hardware, software and even security recommendations necessary to meet your needs. Whether you're starting from scratch, upgrading or expanding, Gateway can help you build a wireless workplace right.

Call Gateway today for more information.

Gateway Makes Wireless Networking Installation Simple

When you're ready to take your business wireless, Gateway is ready to make it happen. Our local Network Solution Providers can help you avoid all the usual installation hassles by professionally managing the installation of your company's new wireless network. To ensure all of your wireless network components function as promised—your Gateway Network Solution Providers will perform the following services:

Site Survey'

- Evaluate needs
- Survey location
- Evaluate current hardware
- Determine access point per building
- Proof survey

1

Site Planning'—discuss blueprints

- Access point locations
- Access point configurations
- Antenna installs
- CAT 5 drops
- Printer locations
- AC outlets or power over IP

2

Hardware Installation

- Install all of the above
- Determine PC or notebook for management console
- Configure software

3

Customer Satisfaction

- Proof wireless network with client notebooks
- Client walk-through and approval

4

' Free service is part of the wireless network consultation by a Gateway Network Solution Provider.

Call Gateway today for a custom quote.

Below is a sample of installation costs based on an office of 10 employees. Eight of the 10 employees use notebooks and need access to their existing broadband connection and network.

Service Proposal (half day job):

Additional Network Hardware $821
- 1 access point, 8 wireless PC cards, 1 SMC 5-port 10/100 dual speed switch

Custom Professional Services $540
- 2 local scanners installed, 8 wireless PC cards installed, 1 access point configured

ISP Enabling $120

Total $2481

Prices and configurations subject to change without notice or obligation. Prices exclude shipping and handling and taxes

* Exclusions apply. Visit Gateway.com or call 1-800-846-2000 for a free copy of applicable terms & conditions. Not available in all states

** Free consultation based on up to two hours of assessment. Consultation will be provided via phone or on-site, as deemed necessary by the service provider. The specific services delivered during the consultation will be determined by the service provider.

*** Limited warranties and service agreements apply; visit gateway.com or call 1-800-846-2000 for a free copy. The Extended Care Limited Warranty does not cover external mice, keyboards, printers, docking stations, AC adapters, rack mount servers, monitors, LCD displays for portables, scanners, batteries, external peripherals, add-on components or components purchased after point of sale. See agreements for specific terms and limitations.

Call 1.800.555.2083

Come in to your local Gateway® store.

Eliminate Expensive Surprises

Accidental Damage Protection

The inherent portability of computer notebooks makes them both invaluable and vulnerable business tools.

They're more susceptible to power surges, food and beverage spills and accidentally being dropped, impacted or mishandled.

If a covered notebook is accidentally damaged, your Gateway Accidental Damage Protection* plan:

- Covers expensive repairs
- Ensures speedy repair of a damaged notebook
- Reduces unbudgeted computer expenses
- Minimizes repair costs while maximizing return on investment

$169

For notebooks (3 year coverage)

You're Upgrading Your Network. Now Upgrade Your Warranty

It's smart and easy to extend your standard Gateway Warranty to protect your company's latest investment in technology. Talk to your Gateway Business Solutions Advisor for a 3-year On-Site Warranty*** Upgrade for your systems. For a low per-unit cost, your business can continue to enjoy 24-hour technical support plus parts and labor coverage for all your Gateway systems.

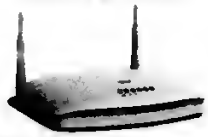
Call Gateway today for a custom quote.

Working Wires

Ideal for small businesses
- Supports up to 16 users
- Built-in router and firewall

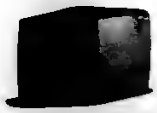
Starting at $189

Enterprise-caliber wireless performance for medium to large companies.
- Supports up to 30-60 users
- Embedded Web Browser



Starting at $449

Dual-Band Wi-Fi5 (802.11a) and Wi-Fi (802.11b) wireless for medium and large companies.
- Supports up to 64 users
- Simultaneously bridges both standards



Starting at $599

PC Card for notebook/ handheld PCs Wi-Fi (802.11b)
- Plug-and-play installation
- Data speeds up to 11Mbps
- Allows highest security

Starting at $89

PC CardBus adapter for notebook PCs Wi-Fi5 (802.11a)
- Plug-and-play installation
- Data speeds up to 54Mbps
- Allows highest security

Starting at $149.95*

USB adapter for desktop PCs Wi-Fi (802.11b)
- Easy installation with USB plug-and-play configuration
- Data speeds up to 11Mbps
- Allows highest security

Starting at $89

Gateway

Online

Gateway

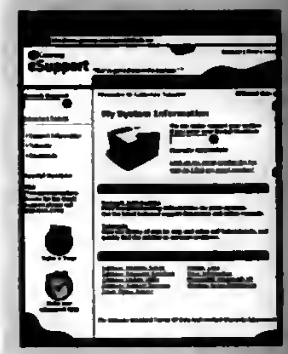
Fast, Personalized Technical Support Online—Just Click

Gateway eSupport

Gateway eSupport combines the latest Web technology with live, personalized interaction. So you get faster access to information and services as part of your Gateway standard limited warranty.

- **My System Information**
  Get a snapshot of your system's configuration, including model number, processor and warranty expiration date. Want more detailed information? Click on the Additional System Information link.
- **Downloads**
  Enter your serial number and access specific drivers for your system. Or, browse all of the drivers with the Step-by-Step wizard.
- **Support Information**
  Obtain product information, User's Guides, issues/resolutions and product specifications. View information for your specific system or browse the entire support library.
- **Tutorials**
  Get help or learn to use new software, hardware or operating systems with Gateway's extensive library of videos and "How Do I?" materials offering step-by-step instruction.
- **Contact Us**
  Get online support help by e-mail or Web chat, check your order status and more.
- **Account Info**
  Update your account, get a copy of your invoice or packing slip.

Service methods subject to change without notice or obligation.



Take advantage of the convenience of eSupport. Log on today!

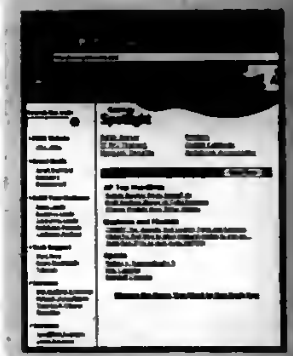
Keep Ahead of the Competition

Gatewaybiz.com

Pressed for time? Get news, business updates and the tools and information to help grow your business—all at your fingertips. Gatewaybiz.com is a customizable Web site that's pre-loaded on all Gateway® PCs with the Microsoft® Windows® XP Professional Edition.

Gatewaybiz.com features:

- Personalized home page with your news, stocks, weather and sports
- Your choice of 50 special news topics
- Google® search engine
- Links to credit reporting services, lead generation tools and database services
- Customer analysis wizard to tell you how many new prospects are in your chosen geographical area
- Personalized portfolio tracking
- Dun & Bradstreet financial data on thousands of companies
- E-mail for the whole office
- Personal calendar and address book



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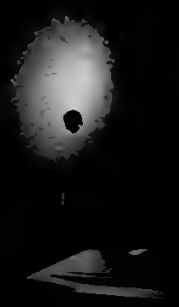
Click www.gateway.com/offer/aug9

Wireless Networking



NETWORK SOLUTION PROVIDERS: YOUR WIRELESS GUIDE

Gateway Network Solution Providers (NSPs) are networking experts, ready to assist you with planning or implementing your wireless network. During a consultation, Gateway will recommend technology, hardware, and software—or if you're already running a wireless LAN, we'll offer ideas for optimizing it and increasing productivity. Wireless is the ideal solution for:

- Temporary workgroups and sites
- Hard-to-wire locations
- Fast-growing businesses

Call Gateway to set up a FREE•• appointment with your Network Solution Provider.

FREE WIRELESS UPGRADE• ON SELECT GATEWAY® NOTEBOOKS

High performance, Ultra-portability

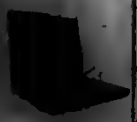
Gateway® 1450SE
less than 6.5 lbs.* and 1.26" thin

Starting at **$1099**

Gateway® 400L
less than 7.51 lbs.* and 1.35" thin

Starting at **$1499**

Gateway® 450L
less than 6 lbs.* and 1.21" thin



Starting at **$1499**

Gateway® 600L
less than 8 lbs.* and 1.69" thin

Starting at **$1899**

Notebook offers not combinable with any other offers or discounts.

Empower Your Mobile Professionals

First, networking boosted your company's productivity making everyone more efficient and tapping the power of instant communication. Now Gateway wireless networking frees you to print, access data and communicate in virtually any environment. Nothing limits your mobility or productivity.

What is the Gateway Wireless Workplace?

A Gateway wireless office eliminates limitations on distance, speed and flexibility. It uses radio waves instead of cables to transfer data between access points attached to your wired network and wireless adapters attached to your PCs.

Gateway Wireless Benefits Your Business

- Growing businesses can network without the time and inconvenience of running cables, tearing up walls and reconfiguring equipment
- Wireless access points can be easily added to network servers
- Wireless network cards and USB clients add wireless connectivity to your notebooks and desktops; better yet, Gateway notebooks are available with integrated wireless capability
- Networks can ramp up in days, not weeks, in hard-to-wire or temporary locations
- Mobile employees get the flexibility and resources they need to be more productive
- It allows for fast expansion, on-the-fly information sharing, and simultaneous Internet connections
- It saves you money by avoiding costs like wires and data port installation, leased lines, and monthly ISP fees
- When you move, you can take your network with you

Is Gateway Wireless Networking for You?

Ask a Gateway Business Solutions Advisor to assess your business needs, and discover how a Gateway wireless network can transform your company.

* Prices and configurations subject to change without notice or obligation. Prices exclude shipping and handling and taxes.
Not valid with any other offers or discounts. Offer expires 9/1/02.
•• Free consultation based on up to two hours of assessment. Consultation will be provided via phone or on-site, as deemed necessary by the service provider. The specific services delivered during the consultation will be determined by the service provider.
••• This product currently only available through the Gateway Accessory Store—www.gateway.com/accessories.
‡ Range varies from approximately 165 to 1750 feet, depending upon multiple variables.
† Weight varies with options.

Create a Wireless Network in Minutes

Gateway wireless technology lets you build a wireless business network without getting caught up in cables, modems and installation hassles. Wireless network access points and Local Area Network (LAN) technology give your staff the freedom to connect with your business network or work online any place†. And any time.

Gateway Wireless Networking Essentials

Fast wireless connectivity for small business.

Intel® Wireless Base Station

A low-cost base station for basic wireless networking and Internet access.

- Ideal for small offices
- Provides firewall security and NAT DHCP services for secured Internet connections
- Multiple users can share a single Internet connection
- Provides high security encryption (128-bit WEP encryption)
- 4-port 10/100 switch
- Supports up to 16 wireless users

$189

Enterprise-caliber wireless performance for medium to large companies.

Intel® PRO/Wireless 2011B

Roaming capability and support for a greater number of users, ideal for the growing company.

- Roaming and wireless repeater support
- Bridges wired to wireless networks
- Supports up to 30-60 users
- Integrated Wi-Fi compliant radio
- Provides highest security (128-bit encryption)
- Provides for specialty antenna connections

$449

Enterprise-caliber dual wireless LAN (802.11a and 802.11b) access point for medium to large companies.

Intel® PRO/Wireless 5000 Dual

Ethernet 10/100 support with dual wireless LAN architecture and highest security for corporate users.

- Support of up to 64-users per wireless LAN communications (802.11a and 802.11b)
- 10/100 Mbps Ethernet support
- Roaming support
- Provides highest security (128-bit encryption)

$599

Network your Gateway® notebooks.

Intel® PRO/Wireless 2011B PC Card

Installs in minutes to give notebooks wireless Wi-Fi network access at up to 11Mbps.

- Frequency: 2.40GHz
- Speed: Up to 11Mbps
- Standard: Wi-Fi (802.11b)
- Provides highest security (128-bit encryption)

$89

Network your notebooks for high-performance.

Intel® PRO/Wireless 5000 CardBus*

PCMCIA-type CardBus Adapter links notebook PCs to high-performance wireless network access points (802.11a).

- Speed: Up to 54Mbps
- Standard: Wi-Fi5 (802.11a)
- Provides highest security (128-bit encryption)

$149.95

Wirelessly network desktops in seconds.

Intel® PRO/Wireless USB Adapter

Plugs into your PC's Universal Serial Bus port for high-speed Internet access.

- No need to open the desktop (easy install)
- Separate power supply not needed
- Provides highest security (128-bit encryption)

$89

NETWORK SERVICES

Easy Wireless Network Installation With Gateway

When you're ready to take your business wireless, Gateway's ready to make it happen. Your Network Solution Provider will manage each step of your wireless network implementation:

- **Planning:** Creating detailed blueprints for access point locations and configurations, antenna installation, Category 5 drops, printer locations and power sources
- **Hardware Installation:** Installing access points, antennas and related products, designating management consoles, configuring software
- **Completion:** Testing the wireless network with your systems, walk-through and final approval

Call your Gateway Business Solutions Advisor for a custom quote

Click www.gateway.com/office/aug9

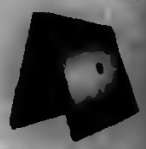
Gateway

LEADING EDGE TECHNOLOGY AT A VALUE PRICE

Gateway® 450L Notebook

At less than 6 pounds*, it's one of our slimmest, lightest notebooks. With Intel® Pentium® 4 power, it's also one of the fastest.

- Intel® Pentium® 4 Processor 1.60C GHz
- 256MB DDR Memory
- 20GB Ultra ATA Hard Drive
- Modular 16x CD-RW Drive



Starting at only **$1499**

Gateway® 700L Desktop

Features high-end graphics and optional power to take on the most demanding business applications.

- Intel® Pentium® 4 1.80GHz Processor
- 256MB RDRAM Memory
- 40GB 7200rpm Hard Drive
- 20x min./40x max. CD-ROM Drive

Starting at **$1099**

Upgrade to Wireless – FREE

99

FREE

Services & Support

Five Reasons
to Choose Gateway Services and Support:

1. ***Expertise***

   Gateway's Network Support Centers staffed by experienced, certified Microsoft® and Novell® engineers provide 24/7 technical phone support. Expert, field-tested advice on business hardware, operating systems and network infrastructure is just a phone call away.

2. ***Convenience***

   Gateway's many service options let you get the help you need, when and how you need it. Visit one of nearly 300 Gateway® stores to demo products or talk to a Business Solutions Advisor, or access a private technical support line customized for your company with Personalized Help Desk. You can even buy software support time as you need it with Answers by Gateway. And that's just the beginning.

3. ***Speed***

   Gateway's fast-response system brings your company skilled technical professionals with minimal delay. Local Network Solution Providers can be on-site* in as little as four hours, while local repair centers in most business communities provide faster turnaround and minimize downtime.

4. ***Value***

   By offering a comprehensive range of programs—including security audits and network consulting—at extremely affordable prices, Gateway puts superior technical support and services within reach of businesses of all sizes.

5. ***Satisfaction***

   Gateway is the end-to-end technology resource for millions of businesses throughout North America. That's a track record of satisfied customers and proven value.

Built-to-Order Services for Your Business

Gateway has created a full suite of service and support programs that help your business become more efficient and your staff more productive. Anticipating end-user needs, working to help you prevent problems and lower costs, making solutions easy to find—that's support by Gateway.

Personalized Help Desk

This service gives your company its own custom 24/7 private support hotline, accessible only with your private PIN. When you call, experienced Gateway technicians are ready with your entire support history and technology profile, so they can assist quickly with recurring issues.

- Remote support for Gateway® desktop PCs and notebooks and non-Gateway systems
- Assistance with more than 150 major software titles
- Support for a wide range of peripherals, printers and scanners

Starting at **$24** */system/year*

Answers by Gateway

Manage your end-user software support costs by keeping them predictable. Answers by Gateway lets you purchase your telephone support in blocks of 30, 60 or 120 minutes. When minutes run low, just recharge your account, or buy a one-year pre-paid subscription and enjoy unlimited support calls.

You'll get top-quality software support service, including installation advice and troubleshooting for a wide range of applications, including Microsoft® Office and QuickBooks®.

- 30 minute support card **$49**
- 60 minute support card **$79**
- 120 minute support card **$129**
- Unlimited Annual Pre-paid Subscription **$149**

Purchased minutes expire after one year

Escalation Advisor

With Gateway Escalation Advisor, you're assigned a senior-level support advisor—an expert on your complex IT needs. Your Escalation Advisor is available via a special toll-free number during normal business hours, and is backed by an elite team, 24/7.

- Advanced, senior-level support lightens IT workloads
- Expedited access provides faster resolution
- Detailed call reporting can improve your return on investment

Call for a custom quote

Prices and configurations subject to change without notice or obligation. Prices exclude shipping and handling and taxes.

* Limited warranties and service agreements apply; visit gateway.com or call 1-800-846-2000 for a free copy. Gateway will attempt to resolve your issue remotely. If this is not possible, Gateway will dispatch a technician. Gateway cannot guarantee that your issue will be resolved in any particular time. 4-hour dispatch service is not available in all locations. See agreements for specific terms and limitations.

** Exclusions apply. Visit Gateway.com or call 1-800-846-2000 for a free copy of applicable terms & conditions. Not available in all states.

Accidental Damage Protection**

Insulate your business from the high cost of repairing damaged desktop and notebook systems. Whether the cause is a power surge, liquid spill or impact, Gateway Accidental Damage Protection is security against unexpected expense.

- Covers expensive repairs due to accidents
- Guards against unbudgeted expenses
- Reduces repair costs to help increase return on investment

Starting at **$39** *for desktops* *Starting at* **$119** *for notebooks*

Network Security Audit*

Assess potential security risks in your network and facilities with a Gateway Network Security Audit. A Gateway Network Solution Provider analyzes your network security on-site including five workstations and one server; our comprehensive report covers these crucial areas:

- **General Security Strategy**—Analyze and document current security measures, disaster recovery plans and potential security issues
- **Physical System Security**—Internal/external anti-theft and tampering safeguards, as well as tracking devices
- **Data Security**—Virus, firewall and password protection, Internet security and back-up plans

Gateway will recommend solutions to any problems identified to help ensure optimal security for your business.

Starting at **$199** *(during business hours)* **$299** *(after hours)*

Custom Integration Solutions

Put your new Gateway systems to work right out of the box. Gateway's Custom Integration Solutions (CIS) team can deliver your systems pre-configured to your exact specifications. CIS can even install third-party hardware and pre-load your software right in our factory, so your PCs arrive equipped with your own programs and applications.

Popular CIS Services include:

- **Client-Supplied Software Images**—Factory installation of client-supplied hard drive images or custom images we design to your specifications
- **Image Restoration Media**—Provide a self-installing back-up copy of your custom disk image on CD to restore the system to an as-shipped state
- **Custom Hardware and Security Components**—Factory installation of almost any industry-standard component, peripheral or software application
- **Asset/Info Tags**—Creation and application of custom asset tags, including client-specific information such as department numbers, contract numbers or tech support numbers
- **Network Configuration**—Installing customized network settings, so systems arrive ready to connect to your network right out of the box

Save time and enhance your efficiency with custom-configured systems. Contact your Gateway Custom Integration Solutions team today!

Click www.gateway.com/offer/aug9

Gateway

GAIN PERFORMANCE AND VALUE

Gateway® 500S

"Best Buy" Office PCs Value System — PC WORLD

PC World July 2002

". . . pairs high-end performance with an appealing design."

- Intel® Pentium® 4 2.0GHz Processor
- 256MB DDR SDRAM
- 40GB 7200rpm Hard Drive
- 24x/10x/40x CD-RW
- 17" (15.9" viewable) CRT Monitor

Starting at only **$1199**

Call for more details

Gateway® 700X

"Best Buy" Office PCs Power System — PC WORLD

PC World July 2002

- Intel® Pentium® 4 2.40GHz Processor
- 512MB RDRAM
- 80GB 7200rpm Hard Drive
- 16x/48x DVD-ROM Drive and 40x/12x/48x CD-RW
- 17" LCD Flat Panel

Starting at only **$1999**

Call for more details

Accidental Damage Protection

Business Learning

Training:

INVEST IN YOUR EMPLOYEES AND GAIN:

- Higher productivity
- Faster return on technology investment
- Greater worker confidence
- Better employee retention
- Improved customer service
- Less downtime

CD LEARNING LIBRARIES:

Set Your Own Pace

Gateway CD Learning Libraries' let you set the schedule with user-friendly, interactive multimedia instruction from beginner to advanced on powerful CD-ROMs. Train when you want to at any computer — no Web connection required. And, you keep the CDs for reference or refresher training.

Microsoft® Works Suite 2002

Master the most popular office applications including Microsoft Windows®, Internet Explorer, Outlook Express, Word, Quicken® and more.

~~$149 Value~~ *Now only* **$99**/user

Microsoft® Office XP Small Business

Put technology to work with training on business productivity applications including Microsoft Windows, Internet Explorer, Word, Outlook, Excel and Publisher.

~~$149 Value~~ *Now only* **$99**/user

Microsoft® Office XP Professional

Expand your skills on a wide range of business tools for every task, including Microsoft Windows, Internet Explorer, Word, Outlook, Excel, Publisher, PowerPoint® and Access.

~~$175 Value~~ *Now only* **$99**/user

Stay on Top of Technology with NEW Gateway Training

Gateway training programs are the fastest growing in the world. And now they're better than ever, with expanded course offerings and enhanced content to help your staff master productivity skills, management methods and critical applications that boost your bottom line.

Master New Technology Quickly

Office Productivity Online Learning Subscription

Learn essential software applications including Microsoft® Office and QuickBooks® and master the skills needed for everyday business.

- Proposal, plan and presentation development
- Budgeting and revenue tracking
- Database and inventory management
- Financial Management

$99/user/year

IT Foundations Online Learning Subscription

Designed for the non-technical professional who would like to learn the basics of computers and networks.

- Operating system basics — Windows® 98, 2000 and XP Professional
- Microsoft SQL Server 7.0 System Administration basics
- NetWare 5.0 networking fundamentals basics
- Exchange Server 2000
- Essentials of Microsoft Networking Second Edition
- Oracle Developer 2000 basics

$99/user/year

eCommerce Online Learning Subscription

Enhance your online customer service and increase sales. Employees develop the fundamental skills of eCommerce.

- Introduction to the Internet
- Site planning
- Web design
- eCommerce applications

$99/user/year

Business Productivity and Desktop Publishing Online Learning Subscription

The ultimate online learning tool. Learn everything from common desktop applications to desktop publishing.

- Create high-quality publications such as brochures and newsletters
- Learn Adobe Photoshop®, Pagemaker®, Illustrator®, InDesign® and more
- Learn Macromedia Director®, Dreamweaver®, and Flash®

$199/user/year

Prices and configurations subject to change without notice or obligation. Prices exclude shipping and handling and taxes. **Online training:** Instructor-led courses subject to availability. Course material purchase and Internet access required. **In-store training:** Courses subject to change, may vary by location and are not offered as vocational or job training. Club memberships non-transferable. Refunds not allowed for upgrades. **All training:** Gateway training is not offered as vocational or job training.

Certification Preparation for IT Professionals

IT Network Technician Online Learning Subscription

This course helps IT staff prepare for CompTIA's A+, Network+, Server+ and I-Net+ certifications and gain knowledge on:

- Basic hardware and software skills
- Configuring and operating a variety of networking products
- Installing, configuring and troubleshooting network hardware, peripherals and protocols
- Identifying basic attributes, function and performance of various System Bus architectures

$299 /user/year

IT Network Engineer Online Learning Subscription

This course helps IT staff prepare for MCSE, CNE and Cisco's CCIE certifications and gain knowledge on:

- Planning, installing, configuring, and upgrading networks
- Building networks using TCP/IP protocol
- Building Internet infrastructure
- Central software upgrades to servers and clients
- Implementing Novell Directory Services eDirectory

$999 /user/year

IT Network Administrator Online Learning Subscription

This course helps IT staff prepare for CNA, MCSA, MCAD, CCNA, CCNP certifications along with courses in Linux. Gain knowledge on:

- User workstation set-up
- Managing networked users and resources
- Installing and configuring print servers
- Routine software maintenance
- Automating network access
- Network performance monitoring
- Installing and configuring LAN, WAN and dial access services

$799 /user/year

Database Technologies Online Learning Subscription

This course helps IT staff prepare for MCSD, MCDBA, Master CIW and Oracle certifications and gain knowledge on:

- Introduction to SQL
- Oracle Fundamentals
- Oracle8I: SQL, PL/SQL, and SQL*Plus
- Database Design
- Oracle Developer 2000
- Oracle8I
- Querying

$399 /user/year

Web Development and eBusiness Online Learning Subscription

A comprehensive course that helps Web professionals develop leading-edge skills in HTML, Java, and beyond.

- Java/Java 2
- JavaScript Programming v1.2
- Visual Basic 6.0
- Informative Seminars

$399 /user/year

Gateway LEARNING

Gateway

LEARN THREE WAYS WITH GATEWAY

Online Learning Subscription[1]

Your staff can train when and how they choose with Internet-based courses that let them set the pace. Courses cover a vast range of skills from basic applications to IT certification preparation.

Starting at **$99** /user/year

CD Learning Libraries[1]

Learn and explore eCommerce and an Introduction to PC Networking and Support on your own time with these powerful CD Learning Libraries. No Web connection is required, and you keep the CD's for refresher training.

Starting at **$199** /user

Classroom Instruction[1]

Learn from friendly, experienced Gateway instructors at your local Gateway* store. Small class sizes ensure in-depth instruction and plenty of personal attention.

Full-day classes starting at **$149** /person

Click www.gateway.com/offer/aug9

Accessories

ONE-STOP SHOPPING FOR NEARLY ANY ACCESSORY

No matter which Gateway® system you use — and even if you use another vendor's — you'll find all the accessories you need from a single provider: Gateway. We stock a full range of leading-brand software, printers, scanners and much more, all competitively priced and available with a single phone call or click on the Web.

Our Gateway Business Solutions Advisors will recommend the right accessories to fit your hardware, network configuration and specific needs. So when you need essential tools to run your business, you can't afford to waste money or time. Gateway saves you both.

TOTAL PC PROTECTION

Gateway Accidental Damage Protection† covers you against unexpected repair costs should any of your business notebooks and desktops be damaged by liquid spills, mishandled luggage, power surges — a wide range of potential mishaps.

- Covers the cost of expensive repairs
- Helps get notebooks, desktops and users working again faster
- Prevents unpleasant "surprises" in your IT budget
- Helps maximize the return on your notebook and desktop investment

Accidental Damage Protection† protects your system against costly repairs in case of accidental damage.

Power Accessories Complete Your Solution

The right accessories can improve the functionality and the productivity of your Gateway business technology investment. Gateway is your one-stop provider of a full range of peripherals and extras — from flat-panel monitors to software, printers to power protection. Ask your Gateway Business Solutions Advisor about top-quality accessories that complete your solution.

Software — *Tools for Productivity*

QuickBooks® Basic 2002

The standard in accounting management software, with the tools a business needs to organize financial data, invoice and collect payment, and organize fiscal data.

- Fast, easy startup
- Check writing and printing
- Alert reminders
- Customer payment tracking
- Purchase order and invoice creation
- Inventory tracking

$179 *one user*

QuickBooks® Pro 2002

QuickBooks Pro gives you all the features of QuickBooks Basic, with some powerful extras, including:

- Estimate creation
- Supports up to 5 simultaneous users
- Online banking and bill payment
- Online customer payment acceptance

$249 *one user*

Microsoft® Project 2000

The leading project management software, offering a full suite of powerful collaborative planning and scheduling tools.

- Integrated with Web-based Microsoft Project Central
- Powers collaboration via the Web and e-mail
- Provides secure online access to project information
- A complete organizational project management solution

$449

Microsoft Visio 2002 Professional

The industry-standard for creating powerful effective flowcharts, data-rich business diagrams, building floor plans and much more.

- Easy-to-master user interface
- Embedded data and XML support
- Enhanced diagramming and drawing tools
- Ideal for IT professionals and visual learners

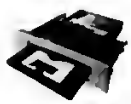
$439

Storage — *Protection for Vital Data*

Iomega® 250MB Internal Zip® Drive

Easily stores large graphic files, data and presentations on a removable disk, while the in-case design preserves precious desk space.

$125



LaCie® 20GB Firewire & USB External PocketDrive

Designed for the mobile professional, the LaCie PocketDrive offers an excellent solution for back-up, data exchange, and archiving while on the road.

$215

Wireless Connectivity

Intel® PRO/Wireless 2011B PC Card

Installs in minutes to give notebooks wireless Wi-Fi (802.11b) network access at up to 11Mbps.

$89

† Prices and configurations subject to change without notice or obligation. Prices exclude shipping and handling and taxes. Exclusions apply. Visit Gateway.com or call 1-800-846-2000 for a free copy of applicable terms & conditions. Not available in all states.

Flat Panel Display Monitors—*Big Style, Small Footprint*

Samsung® SyncMaster 570V 15"

The 570V delivers 1024 x 768 resolution for vibrant color and razor-sharp images on an affordable flat panel display.

$359

Gateway 15" LCD Monitor

Flat Panel Display features a 15-inch TFT screen in a slim, space-saving body. Supports a 1024 x 768 maximum resolution featuring 16 million colors and the .297mm RGB stripe pitch to ensure sharp detail.

$429

ViewSonic® VX500 15" LCD Monitor

Innovative technology delivers high contrast and brilliant colors for photo-like image quality. Features 1024 x 768 resolution.

$499

NEC/Mitsubishi® MultiSync LCD1760V 17"

Versatility, performance and value in a space-saving 13.7-pound, 2.8-inch deep package. Flicker-free images and high brightness level provide outstanding screen performance.

$659

CRT Monitors—*Crisp, Clear Viewing*

NEC/Mitsubishi AccuSync 70F 17" (16" viewable) NEW!

Delivering the quality and reliability traditionally seen only in pricier models, the AccuSync 70F sets a new standard in value.

$149

ViewSonic E70 17" (16" viewable)

Ideal for a wide range of applications, with crisp images and brilliant colors for improved viewing of Web pages, digital images and multiple documents.

$159

NEC/Mitsubishi AccuSync 75F 17" (16" viewable)

Use the entire screen area in most resolutions with automatic adjustment to the required resolution. Bright Opti-clear screen surface minimizes glare and increases contrast.

$175

EV700 17" CRT Monitor (15.9" viewable)

Traditional mainstream CRT monitor with a sharp, crisp image available with the new platinum case.

$229

Samsung SyncMaster 955DF 19" (18" viewable)

Whether your work is graphic design, charts and graphs, or Web research, you'll see it more clearly on this truly flat display. Features 1600 x 1200 resolution.

$245

NEC/Mitsubishi MultiSync FP955 19" (18" viewable) NEW!

This naturally flat aperture grill CRT monitor is an ideal upgrade for professionals who use high-end graphics and imaging applications.

$399

VX930 19" CRT Monitor (18" viewable)

Traditional high-end CRT monitor with the new platinum case. Features a flat surface which reduces external reflections and glare. VX930's 0.25mm dot pitch delivers sharp, vivid images and text.

$499

ViewSonic E220 21" (20" viewable) NEW!

For excellent value, look to ViewSonic's E220. It's the perfect monitor for users who want a large, quality monitor without a huge price.

$529

Visit the online Gateway Accessory Store at www.gateway.com/accessories/smb9 or call your Gateway Business Solutions Advisor for thousands of popular peripherals and accessories that boost power, performance and ease of use.

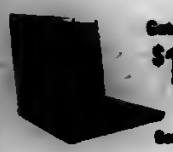
Click www.gateway.com/offer/aug9

Accessories

Use the NEW Gateway Code and Get the System You Want with Just One Click

Now we've made it even easier to order our most popular business systems online. Visit us online and enter the specified Gateway Code in the box. Click the "Go" button—and we'll take you right to the ordering page.

It's that easy!



Gateway® 4SB2
$1499
Gateway Code:
S4500L01

Gateway® S5SL
$799
Gateway Code:
S5000L01

Gateway® E-4200 Special
$749
Gateway Code:
SE40SP01

Scanners — *Capture Your Documents*

Epson® Perfection 1250 Photo

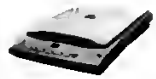
A low price photo scanner with 1200 x 2400 dpi.

$129

HP® ScanJet® 5400 CXI

A compact flatbed scanner perfect for the small office. New CCD technology scans documents at up to 2400 x 2400 dpi.

$199



HP ScanJet 5400 CXI

Robust scanning for frequent use. 2400 dpi resolution, 48-bit color and hands-free document feed. E-mail, copy or share documents to the Web with one button.

$399

Epson Expression 1600 Pro

Optimized to deliver enhanced colors, subtle highlights, and sharp shadow detail, this affordable scanner sets a new standard in image quality.

$1149

Projectors — *Winning Presentations*

InFocus® LP 200 LCD

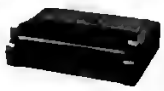
Light, easy-to-use projector features native SVGA at 800x600 resolution, 1000 lumens of projection power, and built-in audio with two speakers.

$1599

Sony® Superlite VPL-CS4

Compact, portable projector features a unique flip-down cover, computer and video compatibility, multi-scan capability and Auto Pixel Alignment.

$1799



Epson Powerlite 713 TFT

Ultraportable 5.8-pound 713c boasts superb quality and color, 1200 lumens of brightness and a built-in monaural speaker. Full function remote control runs the projector from anywhere in the room.

$3199

Epson Powerlite 715C

This portable projector combines high brightness and excellent image quality in an ultra-compact design.

$3499

Visit the online Gateway Accessory Store at www.gateway.com/accessories/smb9 or call your Gateway Business Solutions Advisor for thousands of popular peripherals and accessories that boost power, performance and ease of use.

Prices and configurations subject to change without notice or obligation. Prices exclude shipping and handling and taxes.

Gateway

Multi-function Printers — *Print, Fax, Scan and More*

Lexmark® X83

A great value for space-conscious companies who need full functionality. Prints black and white pages at 12 ppm, color at 6 ppm, scans and copies at high resolution, and provides efax capabilities.

$199

HP OfficeJet® K80

Prints at 2400x1200 dpi, faxes, copies and scans! With a small footprint and compact design, it's ideal for a small office or a small department.

$299

Brother® MFC5700

High-quality results without the high cost. Get 15 ppm printer and copier speeds, and 9600 dpi scanner capabilities.

$549

Laser Printers — *Sharp, Fast Output*

Brother HL1440

Produce crisp text and high-quality graphics with this cost-effective, compact laser solution.

$277

HP LaserJet 2200D

Higher performance printing for small workgroups. Prints crisp 1200 dpi images and text at a blazing 19 ppm.

$799

Xerox® Phaser 8200N Color

With up to 1000 dpi resolution and 16 ppm color, and black and white print speed, the 8200N makes brilliant color printing affordable.

$1899

Digital Cameras — *Leading-edge Photography*

Kodak LS420

2.1 Megapixel sensor captures at 1752x1168 resolution. With 3x digital zoom, 8MB internal memory, memory expansion slot and movie mode.

Rechargeable battery, Easy Share LS420 Camera Dock and carry case included.

$299

Fuji® FinePix® 2800

2.11 Megapixel CCD with Fujinon optical 6x zoom lens and 2.5x digital zoom.

Multiprogrammed flash, motion picture capture with sound up to 60 second, voice annotation, TTL electronic viewfinder, and Webcam function with "Picture Hello" program.

$379

Canon PowerShot G2

4.0 Megapixel sensor captures at 2272x1704 resolution. With 3x optical and 3.6x digital zoom.

Rechargeable battery, charger and 24 image 32MB CompactFlash card included.

$799

Power Protection — *Safeguard Your Systems*

Tripp Lite® TLP01NET Network Surge

Protect valuable network computer equipment against surges. Includes eight AC outlets and a ten-foot cord with space-saving right-angle plug.

$31

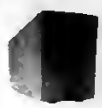
Tripp Lite Internet Office 525

Provides complete power protection for all of your computer components, even modem and fax. It protects connected equipment from blackouts, brownouts, surges and line noise.

$89

APC® Back UPS Pro 650

Emergency power for servers and workstations. Features 650 VA capacity, PowerChute Plus power management software for smooth shutdowns, and DoubleBoost and SmartTrim to automatically correct incoming voltage.



$299

Click www.gateway.com/offer/aug9

eBusiness

A GATEWAY WEB SITE SUCCESS STORY

Several years ago, Martin Scheafer was planning to retire from a successful career at one of the world's largest manufacturers of doors and windows. Instead, he built a Gateway WebStore 100 site called e-Doors.com. From his site, Scheafer now buys directly from vendors and sells specialty and custom-designed solid wood doors to customers all over the world.

Zero Inventory

"By going on the Internet, we reduced our inventory to zero," Scheafer says. "We've done $2 million in sales this year strictly through the Gateway WebStore." He adds that he chose Gateway's site plans because they're easy to expand directly from his Bend, Oregon desktop. "We'll be adding fiberglass doors and we'll probably end up growing the site bigger and bigger," he says.

Getting Personal

Scheafer says the site also enables one-to-one e-mail interaction with customers, which has been great for custom orders. "We did a front door, leaded glass, white oak, custom design. The customer was flat-out tickled pink," he says.

Search Engines Bring Results

According to Scheafer, search engines drive most of the site's traffic. "Type in 'entry doors' and we're often at the top of the first page of results on leading search engines," he says. "People are looking for a better deal, and the Web's the place they start looking."

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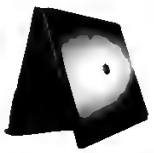

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ties without the need for a 24/7 customer hotline or call center operation.

Jane Hunter, managing director of London-based Science Press Internet Services, is also taking advantage of RichLink's Japanese language capabilities. "It's a huge bonus to be able to offer definitions in Japanese in an easy-to-access format," she said, "because the language gap is real."

Hunter sees opportunities within the Spanish and French language markets to offer a drug database enriched with hypertext definitions. "Not everyone has the same level of English expertise," she says. "And hypertext links are much better than having to scroll through a long page of information searching for a definition."

Clearly there are uses beyond the translation market.

Web-based information requiring additional explanation could easily be served using the RichLink format. Safety and regulatory warnings might be preloaded and linked, helping to reduce telephone inquiries while improving employee performance.

That would be a healthy boost for corporate profits.

MICHAEL GARTENBERG

Conversation Trumps Convergence

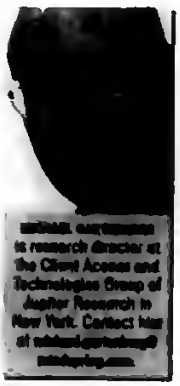
LATELY, there's lots of buzz about the world of convergence and how everything will merge into a single mobile device that will bring information-access nirvana to IT managers and their users.

The latest rage is the smart phone that combines PDA functions with wireless telephony and data. Unfortunately, for years to come, this will be a failed experiment. Most of your users will be far better off carrying a well-designed PDA, a cell phone and, if needed, a wireless data device.

Despite this fact, three myths about convergence persist.

Myth 1: Users want to carry a single device. Whenever I hear discussion on why convergence is a good idea, it usually begins with someone saying that users prefer to carry only a single device. Makes sense, right? Wrong!

Jupiter Research recently surveyed consumers. When respondents were asked how many devices they were willing to carry, they revealed that they were just as likely to carry three devices as they were to tote one, and twice as likely to carry two. So users can be comfortable with two or even three devices.



MICHAEL GARTENBERG is research director at the Client Access and Technologies Group of Jupiter Research in New York. Contact him at mikeg@jupiterresearch.com

Myth 2: The PC should be the model. It's cited as the best example of why business users want converged devices. After all, the PC is the ultimate convergence device. Useful for creating and viewing content, excelling at a variety of tasks, from entertainment to number-crunching and word processing, the PC is a single platform for what used to be separate and dedicated systems. The problem is that the PC is an anomaly. It's the *only* successful converged device.

So when users claim that they want convergence, what they really mean is that they expect the complete capabilities of each dedicated device rolled up in a multifaceted one, because, in effect, that's what a PC gives them. But that's a pipe dream today. The best converged devices can't offer the telephony experience of the best dedicated phones and the PDA experience of the best stand-alone units. If you could give users the same large-screen PDA experience necessary for viewing and creating information, combined with a shirt-pocket-size cell phone *and* the proper battery life, you might have a compelling story. Of course, you would also have to violate several laws of the physical universe to achieve that goal.

Myth 3: Convergence lowers costs. There's some truth to this, in that the cost of supporting one device is less than that of supporting two or three. The problem is that if users can't perform their necessary tasks adequately, there's not only no cost savings, but also a higher total cost of ownership.

The answer for IT managers is not to look for devices that converge. Rather, consider devices that can converse. Maybe a cell phone with eight hours of talk time and the ability to receive wireless data and to be invisibly linked to a PDA with a high-resolution screen and several weeks of battery life via Bluetooth or 802.11x technology.

Devices are best if they follow their primary functions. Cell phones are successful because they do one thing: They let people communicate via voice. PDAs allow users to reference and create data. Wireless devices give users critical updates in real time. Unless there are users who have extremely modest needs and can live with the compromises of convergence, forget one-piece solutions and start looking at device integration today.

READERS' LETTERS

Technology Is Just One Aspect of Telecommuting

MARYFRAN Johnson's editorial ["Killer App Revealed," QuickLink: 31652] reminded me of the time I wrote a handbook on telecommuting. It was 1995, and the world was abuzz with telecommuting fever. In fact, the government was levying penalties if companies didn't institute telecommuting. It was going to be the killer app. Then government pulled back on the regulations, telecommuters realized that they were being passed over for promotions and special projects, and some people realized they lacked the personality for telecommuting. Productivity did go up, but only for a short while, and people learned that they were working longer hours without additional pay.

So, what will make telecommuting successful? Broadband will help, but it isn't a panacea (similar hopes were held out for 56K modems). It has to be a whole-enterprise commitment, not one employee here and another there. Executives need to telecommute for extended periods of time so that they understand the impact on careers. Managers have to understand that results count more than time spent on a project and that only a few personality types can be successful at telecommuting. Unfortunately, these factors are more difficult to understand than technology.

David A. Zimmer, principal
The Unified-View
Warrington, Pa.

Measuring IT Processes

I READ WITH curiosity John Berry's column "Six Sigma Savvy" [QuickLink: 31783]. The more I read, the more it sounded like the Six Sigma manufacturing philosophy that was attempted in many companies 10 to 15 years ago. A lot of time and money was spent learning that IT processes simply can't be measured in the same fashion as widgets coming off an assembly line. Why? Because the inherent variableness of IT processes contaminates the measurements. Remove the factors and the exceptions that contaminate the data, and you're left with data that no longer effectively portrays the process in any sense of reality. But, boy, do those worthless charts and graphs look pretty. The article did nothing to show how Six Sigma might be better now than it was in the past. Perhaps it should have run in your sister publication *Manufacturingworld*?

Cal Anton
Senior systems programmer
Pasadena, Calif.

Checking Backgrounds

COMPANIES that hire H-1B visa holders will find that it's far more expensive to do thorough background checks if the subject has been living outside the U.S. for several years ["IT Pros May Face Background Checks," QuickLink: 31681]. Perhaps the extra costs may encourage companies to hire U.S. citizens. That would be a very positive result.

Jay Gumz
Mission Viejo, Calif.

It's a *Personal* Computer

THE SUNLAMP Linux push sounds like many other Sun initiatives to gain share of mind and money on the desktop [QuickLink: 32241]. All have failed. People always seem to forget that the most important part of *PC* is *personal*. How are all of us stupid user types going to manage our PCs with an entirely new operating system? How will we get all the apps we really like outside the basic office types that our IS organizations want to support?

Mike Wilds
Account executive
Kirkland, Wash.

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THIS WEEK

NAS KEEPS IT SIMPLE

Oil giant TotalFinaElf E&P USA recently completed upgrading its storage environment to an all-NAS architecture that cost about $3.2 million to build but has paved the way to savings in storage management and operations. PAGE 26

QUICKSTUDY

The Security Assertions Markup Language, an XML-based framework for Web services, enables the exchange of authentication and authorization information among business partners. PAGE 30

HANDS ON

For the first release of a new system, the Tablet PC is remarkably well done. Here's a first look at an Acer Tablet PC running Microsoft's new software. PAGE 32

FUTURE WATCH

Someday computers will likely respond to what you say, how you point and where you look. That doesn't mean your mouse and keyboard will disappear anytime soon. But new options are being developed for the human/computer interface so that computers might one day better anticipate what users want. PAGE 34

SECURITY JOURNAL

New IT security employees free Mathias Thurman to pursue security reviews of new application deployments — and to attack the problem of unauthorized wireless LAN devices. PAGE 30

ROBERT L. MITCHELL

The Desktop Diet Plan

THE WINDOWS PC has pushed too much complexity onto the desktop. What's worse, every user thinks he's entitled to a complex, general-purpose Windows-based computing machine. Don't believe it? Just try to pry that Windows PC from any user's cold, dead fingers.

Analysts peg annual desktop management costs at more than $10,000 per desktop, and it's not hard to understand why. Bloated Windows registries, disparate PC hardware and an array of desktop applications create a complex web of variables that require a sophisticated and costly management infrastructure, all to maintain what IT hopes will be the same basic applications across thousands of machines.

Thin-client technologies, such as Citrix's MetaFrame XP and Microsoft's Terminal Services, bring much of that complexity back into the data center, where IT can manage it more easily — and without unnecessary replication. These tools centralize desktop management by sharing out server-based instances of Windows and applications to end users. Only screen images and keystrokes pass between the client and server, requiring about 20K bit/sec. of bandwidth. But while these tools have been used for remote server administration and remote desktop connectivity over bandwidth-starved wide-area networks, most companies have shied away from using them for delivering line-of-business applications inside the firewall. It's time to take another look.

THIN RESOURCES

You'll find lots of resources on thin clients online:

QuickLink: 31058
www.computerworld.com

Thin-client software has improved of late. Both MetaFrame XP and Terminal Services in the upcoming Windows .Net Server boast improved speed and scalability and can use Active Directory to allow role-based access to customized application sets. Both also offer a browser plug-in client and can present the user's applications on a customized, easy-to-navigate intranet Web page.

On the scalability front, support for load-balancing allows servers to scale out. MetaFrame XP provides an additional layer of fault tolerance by allowing server farms to be distributed across data centers. Meanwhile, the arrival of systems based on Intel's Itanium 2 processor, with its Level 3 cache and 64-bit memory architecture, promises to dramatically increase the number of supported users per server.

On the client side, machines such as the $299 Wyse Winterm 1200LE deliver a stateless user desktop with an embedded Microsoft or Citrix client. But there's no need to throw existing hardware away, since any machine with a browser can serve as a thin client. And because the architecture decouples the end-user PC hardware from the desktop operating system and application software, software upgrades and service-pack updates can roll out more rapidly.

In organizations with many remote offices, a thin-client system could eliminate the need for some distributed file and application servers. One IT executive at a large U.S. bank says he expects that strategy to cut TCO by 75%, for a savings of $9 million a year.

These developments should make thin clients hard to resist. But end users and IT still have reservations.

The biggest obstacle may be political. IT still must overcome objections from users who aren't likely to cotton to anything that restricts their God-given right to a PC. A very stable thin-client device with a nice color LCD panel might, however, make converts of those struggling with the Win 9x blue screen of death. In larger organizations, resistance may also come from help desk teams who see thin-client technology as a threat to their jobs.

IT managers are also wary of the extra integration work that may be required to add thin-client software to the application and server mix. They must weigh that against the effort of packaging, distributing and managing software across thousands of PCs. And users of CAD and other CPU-intensive applications, as well as mobile users who need off-line access to applications, may not fit a thin-client model.

ROBERT L. MITCHELL is Computerworld's technology publications editor. Contact him at robert_mitchell@computerworld.com.

Many end users, however, merely run general line-of-business applications and don't need traditional desktops to do to their jobs, much as they think they do. And in today's connected world, users often can't do much more than play solitaire when they lose network dial tone anyway. For these users, a thin-client system is more efficient and manageable.

So before you go forward with that next major desktop deployment, check out the thin-client alternative. If your help desk objects, ask them if they'd like to do something more interesting than troubleshooting those 10,000 Windows registries.

Thinning The Server Ranks

Server consolidation projects are creating new efficiencies – but only for the right applications. By Drew Robb

TECH ANALYSIS

THE ASCENDANCY of Wintel server boxes and the rise of the Internet and corporate e-mail over the past decade have generated an explosion in the number of servers IT must manage. At first, adding servers to accommodate growth seemed more attractive than a centralized mainframe-based computing model. But in some organizations, server proliferation has begun to spin out of control.

"[Our] servers were multiplying like rabbits," says Jeff Smith, manager of corporate network services at La-Z-Boy Inc., a Monroe, Mich.-based residential furniture producer that just completed a Windows NT server consolidation project. "Our distributed environment was becoming more and more difficult to manage."

"It's quite commoo for organizations these days to be running hundreds of Windows or Unix servers, many of them single-applicatioo boxes," says John Phelps, an analyst at Gartner Inc. in Stamford, Conn. He says many companies be has spokeo with have no idea exactly how many servers they have.

This proliferatioo of commodity servers has proved far more costly than previously predicted. Though smaller, scaled-out systems are less expensive than mainframes, IT departments need many more of them to support their companies' business operations. That translates into greater space requirements, more exposure to potential security breaches and a greater management burden.

In response, a movement to consolidate servers has blossomed. Gartner says 70% of its enterprise clients are now trying to consolidate, compared with only 33% three years ago. But with so many servers running so many kinds of applications, where should IT managers start? Both vendors and users say infrastructure servers that handle tasks such as file and print, Web, e-mail and perhaps some databases, are a good bet.

The Road to Partitions

La-Z-Boy launched its effort by coosolidating 12 Compaq servers running Windows NT onto a single Unisys Corp. ES7000 server running Windows 2000 Datacenter Server. The result: reduced administrative costs, lower resource requiremeots and better hardware and software control. Smith says the consolidatioo also let the company avoid adding more full-time employees while managing an expanding IT portfolio.

Using what Blue Bell, Pa.-based Unisys calls Cellular MultiProcessor (CMP) technology, the ES7000 scales to 32 processors, 64GB of memory and 96 Peripheral Component Interconnect expansion slots. It can be configured to run as one large system or broken up into as many as eight independent symmetrical multiprocessing partitions, each running its own operating system. This servers-within-a-server model is what attracted Smith.

La-Z-Boy consolidated its distributed servers onto three partitions oo the ES7000. It placed the general-purpose infrastructure servers (such as imaging, file and print, e-mail, Web and backup) on one partition, consolidated several SQL Server databases on a second partition, and installed MetaFrame thin-client software from Fort Lauderdale, Fla.-based Citrix Systems Inc. in the third partition. Smith plans to add more partitions for Microsoft Exchange Server 2000 and a test environment. Partitioning is easy, he says, although be relies heavily on Unisys tools and support to make it work.

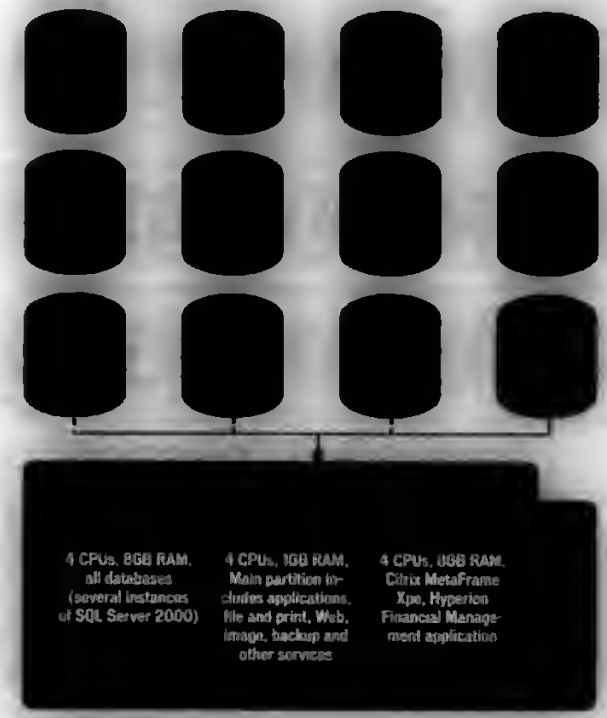
But not everything fits the consolidation model. In the past year, Smith still added about a dozen commodity Windows servers to handle Domain Name System and Windows Internet Naming Service functions. He says that because these machines were inexpensive and carry low administrative and maintenance costs, he saw no ecooomic or performance benefits to adding them to the ES7000.

Even with an expanding workload and larger databases, the ES7000 runs at only 6% to 8% utilization. But companies can't just jam everything onto

Windows NT Server Consolidation at La-Z-Boy

La-Z-Boy consolidated multiple applications running on 12 Windows NT servers onto one Unisys ES7000 running Windows 2000 Datacenter Server. The company avoided application conflicts by creating three separate partitions.

RESULT: A decrease in administrative costs, a reduction in resource requirements and an improvement in hardware/software control.


4 CPUs, 8GB RAM, all databases (several instances of SQL Server 2000)
4 CPUs, 16GB RAM, Main partition includes applications, file and print, Web, image, backup and other services
4 CPUs, 8GB RAM, Citrix MetaFrame Xpe, Hyperion Financial Management application

one server willy-nilly, says Jeff Vail, consolidation manager at Unisys. Network capacity might limit the ability to consolidate distributed Microsoft Exchange servers, and Dynamic Link Libraries conflicts, applications with memory leaks, and peak traffic load and application conflicts are also potential problems, he says.

Switching Horses

La-Z-Boy's Windows-to-Windows approach is just one way to consolidate servers. At Broomfield, Colo.-based Corporate Express Inc. the K- and T-class HP-UX servers from Hewlett-Packard Co. demanded a different strategy. The big driver was space — the company's data center was full.

The business-to-business office supply company migrated 43 servers onto two 26-processor Sun Microsystems Inc. Enterprise 10000s running Solaris. "This immediately freed up half the space in the data center," says Andy Miller, vice president of technical architecture. The result: a savings of $10,000 per day in operating expenses, 100% return on investment in nine months, a 10% decrease in total cost of ownership, 99.99% availability and 100% faster processing.

Miller says the move also helped IT accommodate a 157% increase in sales. "Without the E10k, we couldn't have supported the load, and the data center would have imploded," he says.

The change from HP-UX to Solaris required migrating to a new file system. Miller ran the systems in parallel for six weeks while the data migration proceeded. Though the applications ported to Solaris covered a wide range (enterprise resource planning, PeopleSoft Financials, order processing, human resources and a large data warehouse), Miller says he has had no serious problems hosting them on the E10000 servers.

The secret? "Planning is the key," he says. "You have to test the applications to see which can co-exist at overall performance and traffic loads." Unlike La-Z-Boy, which relied on prepackaged Unisys analysis tools and vendor services, Miller wrote his own simple tools, which he says performed better than available third-party options.

As for saving space, Corporate Express' IT workload has grown, and with the addition of two more E10000s the data center is once again full. Miller is now consolidating two Enterprise 10000s to one Sun Fire 15K server. "That will again free up about 50% of my space, while reducing costs and increasing performance," he says.

Big Iron Mentality

Another approach, espoused by IBM, is to consolidate Windows, Unix and Linux servers onto a mainframe such as the zSeries.

"Server consolidation in Linux has reintroduced the mainframe to a whole new audience," says Peter McCaffrey, eServer director at IBM. "You can transform a single mainframe into hundreds of virtual servers."

Wisconsin Physicians Service Insurance Corp. (also known as WPS Health Insurance) in Madison, Wis., is working with IBM to consolidate 40 Intel-based servers onto an IBM eServer z900 running Linux. So far, two small Linux systems have been migrated, six are in process and five more are planned. WPS expects to consolidate by year's end all 40 machines, including 15 Windows servers hosting e-mail, Web server, directory services and health care applications.

WPS's health care claims processing system originally spanned multiple servers. Integration has already improved efficiency on a system where claims have grown from $800 million to almost $6 billion in four years. "We now process 350,000 claims daily — 12 per second," says Randy Lengyel, senior vice president of MIS at WPS. Other advantages Lengyel cites include a 50% cost reduction per server, a threefold increase in performance, and a mean time to failure that's gone from six years to more than 30.

So far, WPS hasn't attempted application consolidation. "That comes later, after integration of many infrastructure servers," Lengyel says. The company's plans include a PeopleSoft migration next year and a migration from multiple SQL Server databases to an IBM DB2 database.

McCaffrey cautions that not all applications can be combined. Heavily used applications such as those from SAP and Siebel Systems Inc., don't lend themselves well to consolidation, he says. IBM suggests that organizations host databases on mainframes but run such transaction-intensive applications on separate servers.

This, in fact, is one of the main criticisms voiced about mainframe/Linux partitioning. At high levels of utilization, performance may be degraded because of overhead incurred in managing partitions, warns Phelps.

Whatever the design, it's important not to think too big when it comes to server consolidation projects. Internal politics is the biggest reason for consolidation project failure, says Steve Campbell, vice president for enterprise system products at Sun. A better tack, he says, is to start small and achieve measurable results before making too many promises. "Don't tackle cross-business consolidated projects without the support of senior management," Campbell adds.

Phelps agrees. "Planning is crucial," he concludes. "And without complete backing from top management, you are doomed."

Robb is a freelance writer in Tujunga, Calif. You can contact him at drewrobb@attbi.com

SCALE-OUT ISSUES

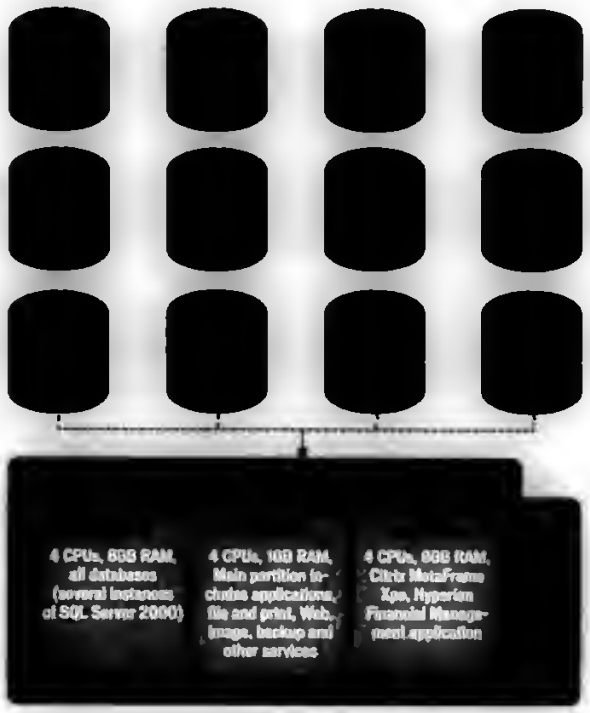
Find out more about the limitations of distributed server designs.

QuickLink: 32018
www.computerworld.com

Windows NT Server Consolidation at La-Z-Boy

La-Z-Boy consolidated multiple applications running on 12 Windows NT servers onto one Unisys ES7000 running Windows 2000 Datacenter Server. The company avoided application conflicts by creating three separate partitions.

RESULT: A decrease in administrative costs, a reduction in resource requirements and an improvement in hardware/software control.


4 CPUs, 8GB RAM, all databases (several instances of SQL Server 2000)
4 CPUs, 16B RAM, Main partition includes applications, file and print, Web, image, backup and other services
4 CPUs, 8GB RAM, Citrix MetaFrame Xpe, Hyperion Financial Management application

one server willy-nilly, says Jeff Vail, consolidation manager at Unisys. Network capacity might limit the ability to consolidate distributed Microsoft Exchange servers, and Dynamic Link Libraries conflicts, applications with memory leaks, and peak traffic load and application conflicts are also potential problems, he says.

Switching Horses

La-Z-Boy's Windows-to-Windows approach is just one way to consolidate servers. At Broomfield, Colo.-based Corporate Express Inc. the K- and T-class HP-UX servers from Hewlett-Packard Co. demanded a different strategy. The big driver was space — the company's data center was full.

The business-to-business office supply company migrated 43 servers onto two 26-processor Sun Microsystems Inc. Enterprise 10000s running Solaris. "This immediately freed up half the space in the data center," says Andy Miller, vice president of technical architecture. The result: a savings of $10,000 per day in operating expenses, 100% return on investment in nine months, a 10% decrease in total cost of ownership, 99.99% availability and 100% faster processing.

Miller says the move also helped IT accommodate a 157% increase in sales. "Without the E10k, we couldn't have supported the load, and the data center would have imploded," he says.

The change from HP-UX to Solaris required migrating to a new file system. Miller ran the systems in parallel for six weeks while the data migration proceeded. Though the applications ported to Solaris covered a wide range (enterprise resource planning, PeopleSoft Financials, order processing, human resources and a large data warehouse), Miller says he has had no serious problems hosting them on the E10000 servers.

The secret? "Planning is the key," he says. "You have to test the applications to see which can co-exist at overall performance and traffic loads." Unlike La-Z-Boy, which relied on prepackaged Unisys analysis tools and vendor services, Miller wrote his own simple tools, which he says performed better than available third-party options.

As for saving space, Corporate Express' IT workload has grown, and with the addition of two more E10000s the data center is once again full. Miller is now consolidating two Enterprise 10000s to one Sun Fire 15K server. "That will again free up about 50% of my space, while reducing costs and increasing performance," he says.

Big Iron Mentality

Another approach, espoused by IBM, is to consolidate Windows, Unix and Linux servers onto a mainframe such as the zSeries.

"Server consolidation in Linux has reintroduced the mainframe to a whole new audience," says Peter McCaffrey, eServer director at IBM. "You can transform a single mainframe into hundreds of virtual servers."

Wisconsin Physicians Service Insurance Corp. (also known as WPS Health Insurance) in Madison, Wis., is working with IBM to consolidate 40 Intel-based servers onto an IBM eServer z900 running Linux. So far, two small Linux systems have been migrated, six are in process and five more are planned. WPS expects to consolidate by year's end all 40 machines, including 15 Windows servers hosting e-mail, Web server, directory services and health care applications.

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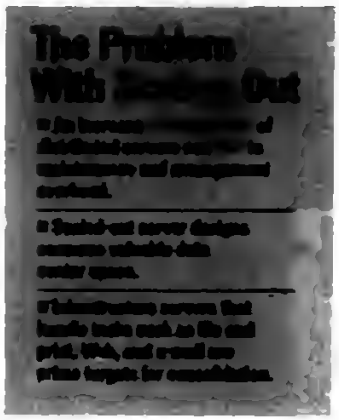

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NAS Keeps It Simple

TotalFinaElf's high-capacity filers manage 18TB of data, effectively consolidating storage without the cost and complexity of a SAN. By Lucas Mearian

CASE STUDY

TWO YEARS AGO, with its oil exploration and production data doubling every 18 months, TotalFinaElf E&P USA Inc. considered building a storage-area network (SAN). It had more than 18TB of shared data directly attached to more than 50 servers at its Houston headquarters, and it wanted to make it centrally accessible and easy to manage.

But executives decided that a SAN would be too inflexible for the company's needs and instead chose a considerably less expensive network-attached storage (NAS) system, the latest upgrade of which was completed last month.

"NAS is less complex than a SAN, especially in a heterogeneous multi-access, multifile system environment such as ours," says Fred Webster, manager of IT at the U.S. arm of France's TotalFinaElf SA, the world's fifth-largest oil company. "While some SAN solutions might be configured to deliver greater throughput for a given scenario, it would be at the cost of less flexibility and greater complexity."

A Better Consolidator

Webster isn't alone in his thinking. At a time when about 20% of the Fortune 500 companies have installed SANs, NAS is more than holding its own as a server consolidation technology that makes storage management easier, analysts say.

"I don't think SAN is an architecture that consolidates storage," says Pushan Rinnen, an analyst at Stamford, Conn.-based Gartner Inc. SANs are still built mostly from homogeneous islands, and each vendor is selling its own Fibre Channel disk arrays, he says. "But with NAS, you can serve Unix or Windows platforms, client or server storage. So from that point of view, NAS is ahead of SAN," Rinnen says.

And from a management point of view, the simplicity of NAS has always been preferable to SANs, he says.

TotalFinaElf's Design

TotalFinaElf spent $3.2 million to construct its NAS system, which includes two NetApp 760 and four F880c filers from Sunnyvale, Calif.-based Network Appliance Inc.

With the exception of its AS/400 data, TotalFinaElf stores all its data on NAS devices. Some 90 high-end Unix workstations also access data on the NAS filers by way of the Network File System (NFS) protocol.

The NAS filers also offload the NFS-based file sharing from TotalFinaElf's Solaris servers, allowing four of those machines to be used for other applications.

Another payoff: By moving from direct-attached storage to NAS, TotalFinaElf has reduced its staff from several file administrators to one part-time technical systems administrator — something that wouldn't have been possible with a SAN, Webster says.

The NAS devices also run the Common Internet File System (CIFS) protocol to allow 37 Windows NT servers and about 450 desktops running Windows to access data. But Webster says he ran into integration challenges in trying to support both Unix and Windows.

"We don't commonly allow Unix systems to natively share the same logical NetApp filer drive as PC systems do because the Unix permissions and the Microsoft [access control lists] get in the way of each other," Webster says. "You really have to think about it for your filer implementations."

His team also spent about four months working out integration bugs with the backup system. The problems were resolved when Legato Systems Inc. in Mountain View, Calif., released Version 6.1 of its Enterprise Backup and Restore management software.

"That was a big issue because when we did have to go back to tape, my NT administrators had to rebuild access control lists for a while," Webster says.

TotalFinaElf also faced a dramatic increase in the time required to complete its weekly tape backups. Using NFS, the system required some 60 hours to copy 18TB over Gigabit Ethernet to the tape subsystem.

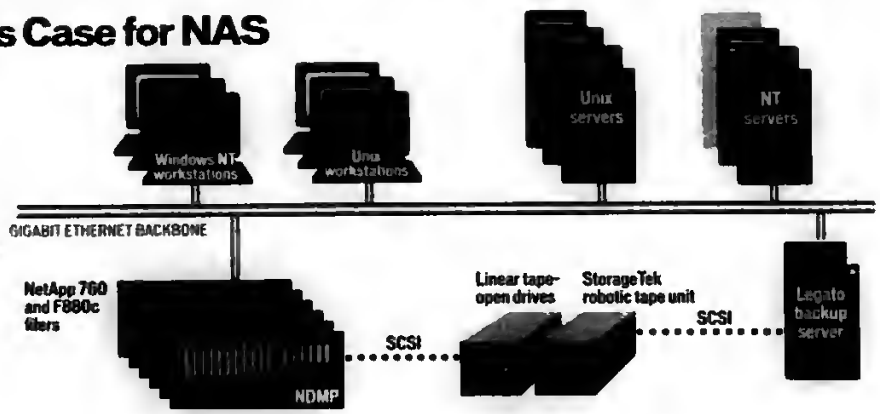
Webster worked with Legato and Louisville, Colo.-based Storage Technology Corp. to implement a system running the more efficient Network Data Management Protocol (NDMP), which automatically finds linear tape-open drives in the tape library and directly connects them via SCSI to the NetApp filers. By separating the data path from the control path, the NDMP protocol minimized demands on the network. "It reduced our backup window by 66%. Now we're down to 20 hours," Webster says.

However, he adds that he would like to be able to scan for viruses on his CIFS and NFS volumes. "PC users are notorious for finding ways to disable client-resident virus scanning, so it's a stretch to depend solely on the client for this service," Webster says. "We understand, however, that there are performance and administration issues if virus scanning is placed on the filer."

Webster says IT managers considering NAS should make sure they understand the architectural concepts and components involved. "Look at your needs" and make sure NAS correlates with that, he says.

TotalFinaElf's Case for NAS

The U.S. arm of the world's fifth-largest oil company uses six NetApp filers to consolidate more than 18TB of data used by a mix of servers and workstations, including an Oracle database server, at its Houston headquarters. The NetApp filers handle both CIFS and NFS file requests. The consolidation effort required a new backup system design. It includes a SCSI-attached tape subsystem that takes backup traffic off the network backbone.



Benefits

- Workstations and server applications have shared access to both Windows and Unix file types.
- NAS consolidated storage more efficiently than SAN alternatives.
- The cost of deployment was substantially less than that of comparable SAN designs.
- Fewer employees are required to manage NAS devices.

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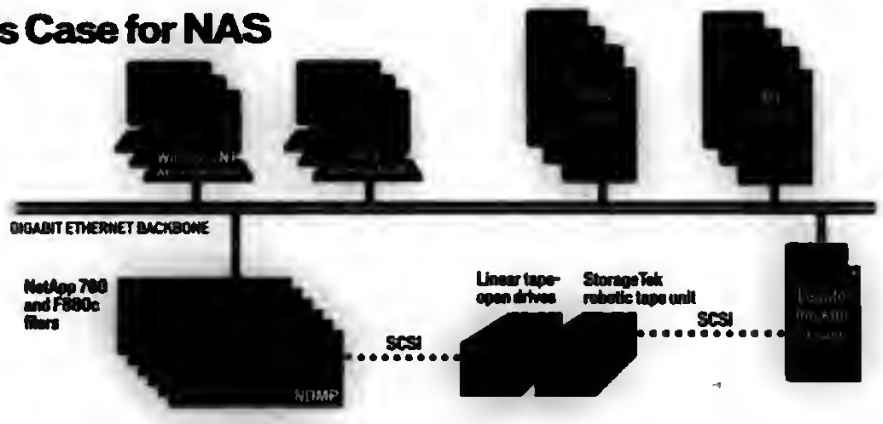

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SAML Secures Web Services

DEFINITION

The Security Assertions Markup Language (SAML) is an XML-based framework for Web services that enables the exchange of authentication and authorization information among business partners.

BY LINDA ROSENCRANCE

YOU NEED to travel to Seattle on business, so you go to your favorite airline's Web site, log in with your user name and password, enter your authentication information and book your reservation.

Then you remember you're going to need a car, so you surf to the auto rental site, log in again with a different user name and password, and reserve your car. Then you head to the hotel's Web site, log in with yet another user name and password, and book your room.

Wouldn't it be easier if you could log onto one site and then be authenticated at associated sites?

If an emerging security specification for Web services from the Organization for the Advancement of Structured Information Standards (OASIS) consortium succeeds, the days of multiple sign-ons could be over for companies and their business partners.

OASIS is a worldwide not-for-profit consortium that drives the development, convergence and adoption of e-business standards.

Its Security Assertions Markup Language (SAML) Specifications Set 1.0 is a vendor-neutral, XML-based framework for exchanging security-related information, called "assertions," between business partners over the Internet.

OASIS is scheduled to adopt SAML by the end of November, according to Jeff Hodges, co-chairman of the OASIS Security Services Technical Committee, which developed the specification.

SAML is designed to deliver much-needed interoperability between compliant Web access management and security products. The result: Users should be able to sign on at one Web site and have their security credentials transferred automatically to partner sites, enabling them to authenticate once to access airline, hotel and rental car reservations systems through Web sites maintained by associated business partners, for example.

QUICK STUDY

SAML addresses the need to have a unified framework that is able to convey security information for users who interact with one provider so they can seamlessly interact with another, according to Hodges.

SAML doesn't address privacy policies, however. Rather, partner sites are responsible for developing mutual requirements for user authentication and data protection.

The SAML specification itself doesn't define any new technology or approaches for authentication. Instead, it establishes assertion and protocol schemas for the structure of the documents that transport security. By defining how identity and access information is exchanged, SAML becomes the common language through which organizations can communicate without modifying their own internal security architectures.

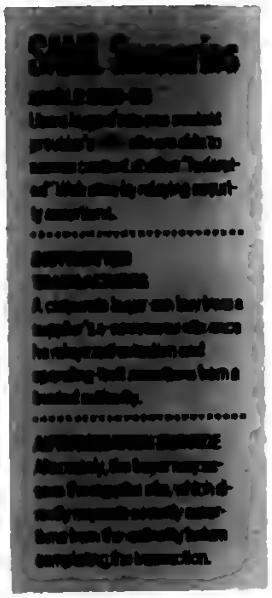
Inside the Spec

SAML is designed to work with HTTP, Simple Mail Transfer Protocol, file transfer protocol and several XML frameworks, including the Simple Object Access Protocol (SOAP) and e-business XML.

It provides a standard way to define user authentication, authorization and attribute information in XML documents.

The main components of SAML include the following:

- **Assertions:** SAML defines three kinds of assertions, which are declarations of one or more facts about a user (human or computer). Authentication assertions require that the user prove his identity. Attribute assertions contain specific details about the user, such as his credit line or citizenship. The authorization decision assertion identifies what the user can do (for example, whether he is authorized to buy a certain item).
- **Request/response protocol:** This defines the way that SAML requests and receives assertions. For example, SAML currently supports SOAP over HTTP. In the future, the SAML request and response format will bind to other communications and transport protocols.
- **Bindings:** This details exactly how SAML requests should map into transport protocols such as SOAP message exchanges over HTTP.
- **Profiles:** These dictate how SAML assertions can be embedded or transported between communicating systems.

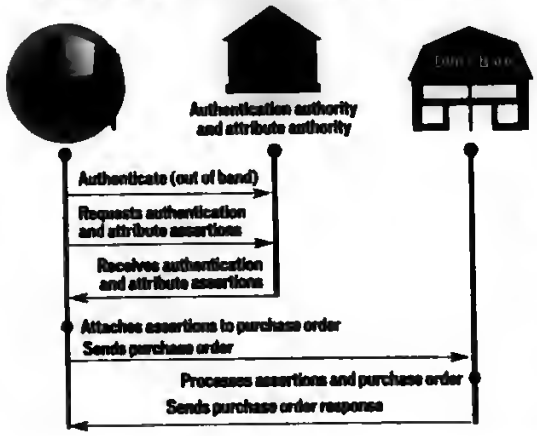


While SAML makes assertions about credentials, it doesn't actually authenticate or authorize users. That's done by an authentication server in conjunction with the Lightweight Directory Access Protocol directory. SAML does link back to the actual authentication and makes its assertion based on the results of that event.

Vendors supporting SAML include RSA Security Inc., Netegrity Inc., Oblix Inc., Baltimore Technologies PLC, CrossLogix Inc., Novell Inc., Sun Microsystems Inc. and IBM's Tivoli Systems. Microsoft Corp. says it will support SAML in its .Net Server operating system. The Liberty Alliance Project, a group of vendors and corporate users developing an open specification for creating a federated single sign-on standard, also backs SAML.

Making Security Assertions

The user wants to buy supplies from Office Barn. The parties don't know each other, but both have a common authentication/attribute authority they trust. The buyer communicates with a trusted authority, known as a policy enforcement point, via SAML over HTTP. The authority returns assertions that the buyer is logged in (authentication) and has a corporate limit of $500 (attribute). The buyer then attaches this information to a purchase order and forwards it to Office Barn. The entire process may be transparent to the buyer.


Authentication authority and attribute authority
Authenticate (out of band)
Requests authentication and attribute assertions
Receives authentication and attribute assertions
Attaches assertions to purchase order
Sends purchase order
Processes assertions and purchase order
Sends purchase order response

MORE ON SAML

Read the SAML specification and white papers here: **QuickLink: 32139**

The Web Services Security specification complements SAML.

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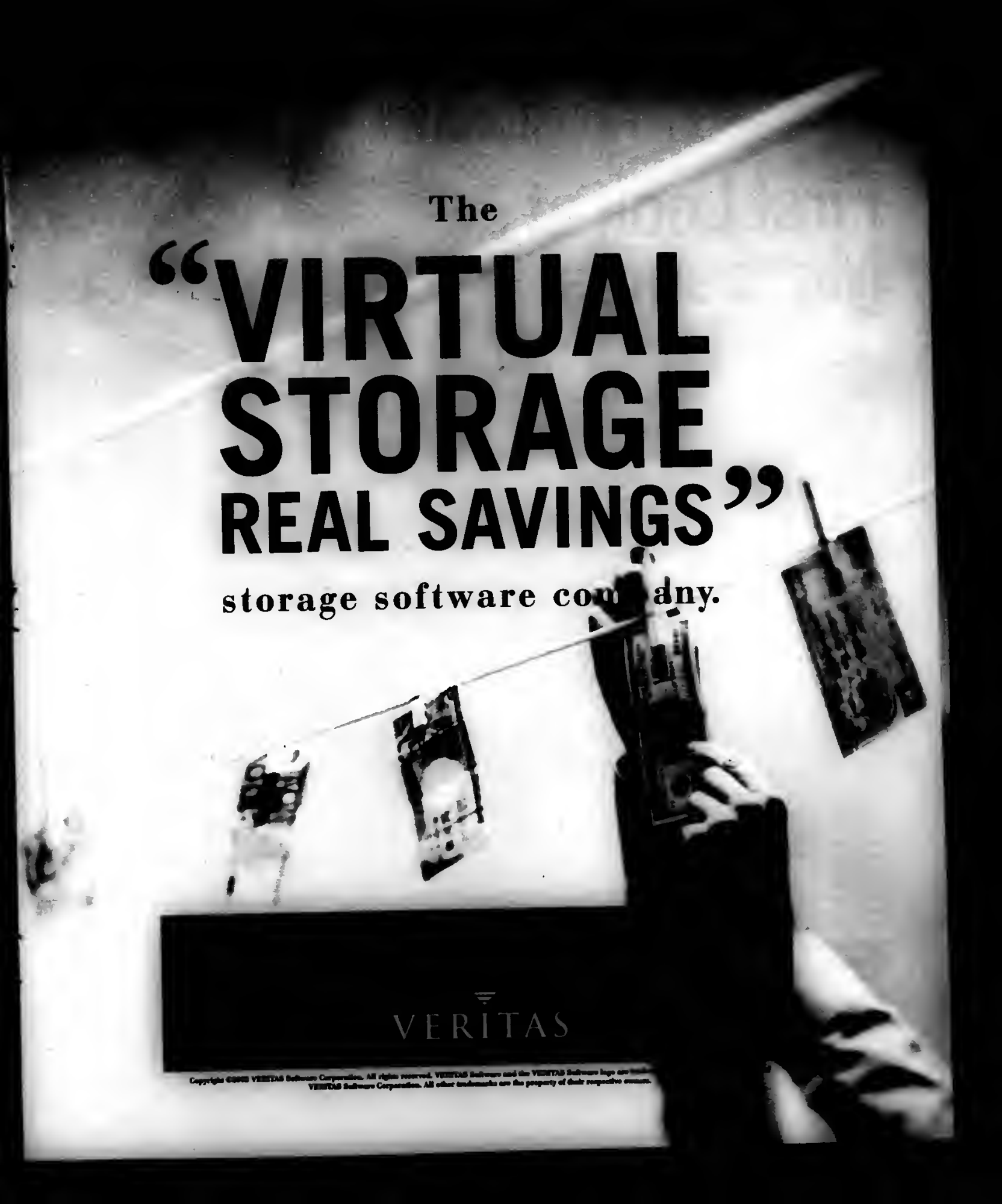

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First Look at Microsoft's Tablet

Write on! Despite the hype, this useful machine is clearly more than just another laptop. By Russell Kay

FOR ALL THE HYPE that Bill Gates has been generating around the Tablet PC concept, you could be excused for thinking the idea is a new one for Microsoft Corp. But in fact, it's a second go-round for the company, years after its ill-fated "Windows for Pen Computing" experiment a decade ago. The current software shows that Microsoft has learned from its mistakes.

The company is expected to officially launch its Tablet PC Nov. 7, with participation from major laptop vendors and Asia-based original design manufacturers.

HANDS ON REVIEWS

Soft Touch

The operating system is Windows XP Professional Tablet Edition, a superset of the standard XP Pro. Microsoft has added a program called Microsoft Journal, which is intended to be a note-taking replacement for the pad of paper you would typically take to a meeting. Everything you write on the pad is stored as graphics — called digital ink — unless you highlight an area and ask the machine to recognize what you wrote. Then it takes its best shot at turning your scribbles into ASCII text. This actually works quite well, even on my often illegible handwriting.

Unlike with some other systems, you can't train this one to recognize your handwriting. In practice, however, I found that I started writing just a bit more carefully to get better recognition — in other words, the machine was training me.

Each page has a title area you can label, and if you call up a list of recently viewed pages, the index displays the handwritten title you gave each page.

It's easy to change colors and to highlight items as well as handwriting. If you need space between items you've already written, you can simply insert the space and drop the remaining text farther down the page. You can choose to erase as well as write, and if you "scratch out" something you wrote, that gesture gets interpreted as an erasure (though I sometimes had trouble getting this feature to work properly).

One very nice feature of Journal is the ability to start a page with any of several different stationery templates: lined "paper," graph-paper grids, calendar forms, memos. It's an obvious sort of thing that's incredibly handy.

To make fuller use of the tablet, users will be able to download software (Microsoft Office XP Pack for Tablet PC) that ink-enables the Word, Excel and PowerPoint applications in Office XP. This will let you insert handwriting into any document.

The Hardware

The machine I've been using is a preproduction Acer Inc. TravelMate 100, with a 10.4-in. screen, a 700-MHz Pentium III CPU, 256MB of RAM, a 20GB hard drive and built-in 802.11b wireless Ethernet. At 3.2 lb., it looks like any small laptop when you first open it. But press a spring-loaded locking pin at each bottom corner of the hinge area, and you can rotate the screen panel 180 degrees and fold it flat again, now with the screen facing out, covering the keyboard. In this configuration, the machine is a hand-holdable slate or tablet.

When you use the tablet, several hardware buttons around the screen come in handy for reorienting the screen from portrait to landscape (and in either direction) and paging up and down, and there's even a button that does a Control-Alt-Delete so you can log back in after your tablet has gone to sleep.

Microsoft has specified that Tablet PCs shall use an electromagnetic digitizer for the touch screen, which means you can rest your hand on the screen without affecting anything or moving the cursor, and the stylus (which has a button on it) needn't actually come into contact with the screen.

I did encounter one major screen-related problem: To avoid reflections and glare, you must hold the screen so you're looking at it full on.

Judged simply as a laptop, the TravelMate 100 is decent but not earth-shattering. I'd much prefer to see a 12-in. screen, and the rather small keyboard has a mediocre touch. The prototype unit I worked with had only average battery life, especially when using the wireless network connection, but the goal is to allow a full workday's use of the tablet before needing to recharge. It seems unlikely that the first wave of Tablet PC machines will achieve this.

The Acer's physical layout is only one of many different formats we're likely to see as other vendors roll out their interpretations of the Tablet PC. All will include a keyboard, though on some that may be attached to a docking station rather than directly to the tablet. While the Acer is designed as a "road warrior" replacement, the more slate-like dockable models are aimed at what Microsoft calls "corridor warriors" — users who go from meeting to meeting.

The TravelMate 100 converts from notebook to Tablet PC.

Pricing hasn't been set, but Acer says the tablet format adds about 10% over the cost of a standard laptop. That would put the TravelMate 100 at just a bit over $2,000.

The Bottom Line

The Tablet PC's versatility can make it a big hit in the marketplace, but the trade-offs to the physical package could also limit its appeal for many. Much depends on the individual machine: Is it comfortable? Rugged? How bright is the screen? How heavy?

So we'll have to wait and see if this is another answer looking for a question, or if it's a real breakthrough in the way we use computers. In other words, the Tablet PC might mirror the success of its smaller cousin, the Pocket PC, or it could sink into obscurity like the first few generations of handheld Windows PCs.

Kay is a freelance writer in Framingham, Mass. Contact him at russkay@charter.net.

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See Me, Hear Me...

New computer interfaces may respond to gestures and speech. By Sharon Machlis

COMPUTERS OF the future may perform tasks based on what you say to them, how you gesture or even where you look. But that doesn't mean your keyboard and mouse are going away anytime soon.

"There's never a need to throw away something that works," says Joseph Olive, a director at the multimedia communications research laboratory at Lucent Technologies Inc.'s Bell Labs.

Researchers working on new generations of interfaces are taking a pragmatic approach to how we'll interact with machines, adding support for text, speech, gaze, gesture and more, depending on circumstances and what seems to make sense.

Ideally, tomorrow's computers will be better at anticipating what users want, without needing typed commands. This will involve "context-aware" interfaces, according to Ted Selker, head of the context-aware computing research group at MIT's Media Lab. That might mean a Web application will be able to sense both your mouse and eye movements to determine whether you've visited a site before and what items most interest you — and then dynamically generate a page based on those interests.

By 2006, Selker says, "the computer will know more about why you're doing what you're doing and what it can do to help you."

Say What?

Speech-recognition software is already making inroads in telephone-based customer service applications. Today's systems are often limited to narrow uses, such as saying the name of a company to get a stock quote. Work on broader-based systems is under way, though.

FUTURE WATCH

"What we're vigorously researching . . . is to let you speak much more freely," Olive says. Murray Hill, N.J.-based Lucent recently tested a prototype of an automated phone operator at a financial institution. Callers could say things like "I lost my checkbook" instead of wading through menu options.

The test involved routing callers to one of about 40 departments. About 8% of the calls had to be switched to a human receptionist because requests weren't specific enough. Among calls handled by the computer, the accuracy rate was 96%, Olive said.

Speech-recognition experts believe the technology will be increasingly used in mobile applications. After all, says Mike Phillips, chief technology officer at SpeechWorks International Inc. in Boston, it's tough to design an easy-to-use knob interface for a car MP3 player that's got a few thousand songs stored in it.

Other potential uses include more sophisticated hands-free dialing as well as climate control systems.

Speech recognition should also make it easier to use a small device to access data stored on a larger one. "Basically, anything that's on your desktop will be available to you by voice," Olive predicts.

Many speech-recognition experts believe that the robust infrastructure of third-generation high-speed data transmission services will improve speech recognition in wireless applications.

For effective speech recognition, some processing should be done in the handset or on personal digital assistants and some across the network, says Bill Mark, vice president of information and computing sciences at SRI International in Menlo Park, Calif. That will help users overcome problems such as noise and choppy reception in some wireless connections.

In some cases, it would be best for the device to do more than simply process a spoken command.

For example, it might be better if a data request were sent seeking prices for a flight to Paris in October, instead of informing the computer that a caller asked, "How much is it to fly from Boston to Paris next month?"

This presents an architectural challenge, Mark notes: How can the airline's computer transmit something akin to a flight reservation request form to a wireless device so the speech can be understood in context and an appropriate request transmitted back?

In a Gaze

Researchers are also investigating how computers might respond to eye movements. Once again, the idea is to supplement the keyboard and mouse, not to replace them.

Add an eye-tracking camera to a laptop and a system "can actually see what you're looking at on the screen," says Daniel M. Russell, senior manager at the user sciences and experiences research laboratory at IBM's Almaden Research Center in San Jose.

This could help make PCs and laptops easier to use. Russell says he envisions a system with a "Jump" key below the space bar. To issue a command, you would look at an on-screen menu option to get a drop-down list, then select an option by looking at it. To execute, you would hit Jump. "It's like the computer knows what you want to do," Russell says. "It just speeds up."

Cameras are too large and costly for commercial implementation of such a system now, he says, but that may change within five years or so.

MIT's Project Oxygen is also researching a way to combine vision and speech so a computer could respond to a user speaking and pointing.

"I really don't think we're going to replace Microsoft Word anytime soon with a gesture interface," says Trevor Darrell, an assistant professor and artificial intelligence researcher at MIT. The idea is to use alternatives where they make sense, including kiosks, cars and meeting rooms.

"The broadest goal is to make computers more interesting or useful," Darrell says.

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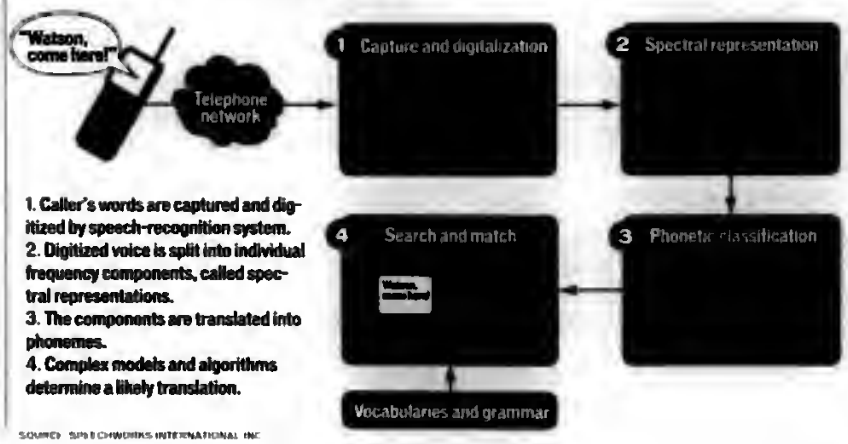
Speech Recognition



1. Caller's words are captured and digitized by speech-recognition system.
2. Digitized voice is split into individual frequency components, called spectral representations.
3. The components are translated into phonemes.
4. Complex models and algorithms determine a likely translation.

SOURCE: SPEECHWORKS INTERNATIONAL INC.

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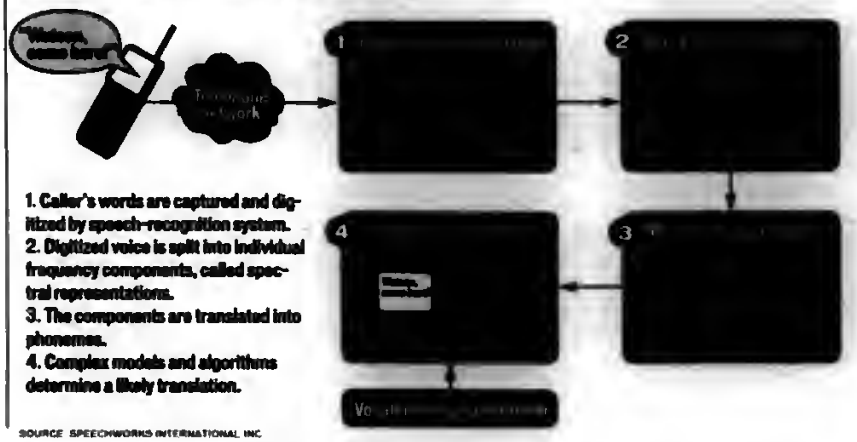
Speech Recognition



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Rogue Nodes Routed as Security Recruits Hired

As new hires take over intrusion-detection duties, Mathias catches up on security reviews – and cracks down on illegal wireless LAN nodes. By Mathias Thurman

SECURITY MANAGER'S JOURNAL

ONE NICE THING about tuning intrusion-detection sensors is that once you've eliminated most of the false positives, you can focus on the events. With tuning done, alerts are more likely to be active attacks.

I've gotten our sensors tuned to the point where I've picked out a half-dozen alerts that are to be sent to my pager automatically via e-mail. This week I was alerted to an Nmap stealth scan coming from an IP address at one of our technical support centers in Florida. (Nmap, or Network Mapper, is a freely available port-scanning tool.) I was able to resolve that IP address to a Linux firewall machine. Using the MAC address (the unique hardware address assigned to an interface card) of the source system provided in the alert, I traced the scan to a user's machine.

That's what's nice about switched Ethernet: I can use the MAC address to discover which switch port the target computer is attached to and trace it all the way down to the exact office jack.

I asked the user's manager to question the employee. Unfortunately, our new acceptable-use policy is still awaiting legal review, so we would have a hard time taking administrative action against the user. His intent wasn't malicious, however. He was testing an application and using the Nmap utility to see if the server on which he had installed the software was responding. He agreed not to use such tools in the future without receiving prior approval.

Reinforcements on the Way

Our staffing dilemma finally ended this week with the hiring of two security engineers. One starts today, and the other in a few weeks. I plan on transferring all intrusion-detection duties to them. That should free me to concentrate on engineering and architecture issues, such as the upcoming implementation of Siebel 7 for customer relationship management. It was painfully obvious that a lack of security was one of the main delays and a cause of great grief in our recent PeopleSoft implementation.

I want to ensure that security is addressed early on this time. I've advised the project manager to think about security early and often, and as a result I'm being invited to a couple of meetings per week. But I've had to miss some of them because of my staff shortage.

> **By handing off intrusion-detection duties to the new recruits, I'll be forcing them to quickly learn the IT infrastructure as well.**

On the upside, managing the intrusion-detection sensors afforded me the opportunity to quickly learn many aspects of our networked environment. For instance, I had to meet with the Domain Name System (DNS) administrator to address one problem, and from those discussions I learned the locations of all our DNS servers, the machines and operating systems on which they run, and how we're using the DNS.

This same type of learning continued with issues related to e-mail, Windows NT servers and other systems. Working with the people who manage each area and asking the right questions helped me quickly learn our IT infrastructure, despite insufficient documentation. Now, by handing off intrusion-detection duties to the new recruits, I'll be forcing them to quickly learn the IT infrastructure as well.

Rogues' Gallery

I must also spend time on our wireless LAN project, which is moving forward full steam. We just ordered a dozen Aironet wireless LAN access points from Cisco Systems Inc. We still must receive, configure and deploy those devices, but first I have a larger problem to deal with: rogue access points for wireless connectivity.

It's amazing how easy, inexpensive and dangerous it is for users to install these devices on our network. Users buy them for about $150, bring them to the office, plug them into the power outlet and an Ethernet jack, and turn them on. Then, by putting a $100 wireless LAN adapter in their PCs or laptops, they can access our network wirelessly.

The scary thing is that some of these access points are so powerful that I can sit in the parking lot and connect to our corporate LAN. Our company's campus is huge, with many buildings spread over several acres, so weeding out these illegal devices is a real challenge.

Initially, I was going to install Marius Milner's freely available NetStumbler (*www.netstumbler.com*), which, when installed on a laptop with a wireless LAN adapter, scans for unauthorized access points. But I decided to use the AirMagnet handheld instead, since it offers a more convenient way to detect rogue devices. (See my review at right.)

To assist in our upcoming wireless rollout, I'm in the process of writing a policy that specifies the correct access-point brand and model and the mandatory configuration for authorized wireless LAN users. *Authorized* is the key word, since we will introduce a strict set of policies, procedures and guidelines prior to the introduction of the wireless LAN.

Our policy will dictate who can use wireless, the procedure for authorization, and the penalties for an unauthorized deployment of a wireless access point. Hopefully that will be enough to eliminate the rogue's gallery of illegal access points on our corporate LAN.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum.

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THIS WEEK

STRATEGIC VENDORS

Devoting your management efforts to forging strategic partnerships with suppliers will bring financial and technological benefits to both you and your vendors. PAGE 42

DAVE PLUNKERT

LANGUAGE BARRIERS

Many IT managers are still using technical geekspeak and alienating their business users. Learning to communicate in terms your audience understands could increase the value of IT at your company. PAGE 44

A TOOL FOR SIZING UP OUTSOURCERS

A complex outsourcing rating system is under development at Carnegie Mellon University. Vendors and users alike say it shows great promise for helping to improve the contract process and for objectively measuring vendors' ongoing performance. PAGE 48

CAREER ADVISER

Fran Quittel advises an IT worker to explore the world of online education as a next career move and helps a programmer weigh the benefits of working for a technology firm or a non-IT company. PAGE 50

WORKSTYLES

Eastman Chemical's IT workers keep their internal customers happy by aligning IT projects with business needs. PAGE 50

ROBERT B. CARTER

Forging Partnerships

THE MOST FUNDAMENTAL CHALLENGE we in IT face today is the poor state of our relationships with business partners in the units we support.

Although ROI seems to be the current industry buzz, we fail to realize that no single factor guarantees a bigger return for IT than having a strong working relationship with the business units that depend on us to help them drive innovation.

IT projects often fall short of expectations or are delivered late because of poor communication, a lack of teamwork or a breakdown in processes, all of which are needed to keep us on the same page with business units.

Yet we continue to devote most of our energy to process management, collaboration, improving our ranking under the Software Engineering Institute's Capability Maturity Model and other things that are often worthwhile but definitely not more important than establishing and maintaining good relationships with our business partners. When it comes to overlooking the obvious, we're no better than the homeowner who spends a lot of time cleaning up for guests while ignoring the eccentric aunt in the coat closet who's screaming to get out.

At FedEx, my team has heard the cries of our business partners, even though we already enjoy relatively strong relationships with them by most standards. Even so, there's room for improvement for FedEx IT and in the IT industry as a whole.

To that end, I've challenged my team to adopt some basic skills that I think are essential for IT to be a trusted partner of the business units it supports. To help get the message across, we've integrated trusted partnership tenets into more than a dozen IT employee and management training courses, including our critical thinking, project management basics and IT business orientation courses. We've also distributed thousands of posters to remind everyone in FedEx IT of the importance of being a trusted partner.

One of the most important things I expect my team to learn is that we must educate our business partners on the complexities and challenges of information technology. All too often, IT professionals are guilty of condescendingly telling business partners that they don't need to understand the technical aspects of a project.

Let's face it: Our business partners are learning more and more about technology because of the increasingly high-tech world we live in. We need to give them credit for what they know, as well as fill in the blanks about the things they don't know. It's important for us to realize that misunderstandings are more likely to occur when our business partners are dealing with technology they don't quite comprehend. So the better we explain the technology and what it takes to implement it, the better our chances for a successful project.

We seem to forget that it's natural for people to respond negatively to things they don't understand, especially things that take time and cost money. Consider, for example, an auto mechanic who smugly tells you there's no need to worry about grasping the specifics of an expensive repair job. That kind of attitude tends to infuriate many customers and causes an immediate lack of trust in the mechanic. The same is true when IT professionals treat their customers that way.

We must learn to take the time to be more informative, because customers who are more knowledgeable about technology are more involved and more likely to engage in dialogue that leads to a mutual understanding of challenges and opportunities.

Another important practice that helps foster trust with business partners is having IT professionals develop a good sense of their clients' work. We should invest the time and effort to understand the day-to-day issues our clients face. The payoff comes when you have a solid sense of the business, making it much easier to develop creative solutions to address the business's technology needs.

Along the same lines, I've challenged the FedEx IT team to always be responsive and flexible. I also challenge my team to be accountable, learn to listen, and display honesty and openness with all business partners. All this is common sense, of course, but without it, we can't provide the kinds of results our businesses partners demand. ▶

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MAKING THE A LIST

By Kathleen Melymuka

How to identify your strategic IT suppliers.

FEW COMPANIES have the staff power to manage all their IT suppliers well, but it's essential to manage at least the strategic ones. By focusing your efforts on the handful of relationships that really matter, experts say you can reap financial and technological rewards.

Larry Graham, vice president of IT vendor management at San Mateo, Calif.-based Inovant, a wholly owned transaction-processing subsidiary of Visa International Inc., says focusing on strategic vendors has helped him negotiate stronger contracts with better risk balance while saving an average of 15%.

Pat Fausett, strategic alliances manager for embedded software and intellectual property at Agilent Technologies Inc. in Santa Clara, Calif., also reports discounts from leveraging volume with strategic vendors, but she says savings don't come from discounts alone. "They come from working better and getting our product out faster, and that's very hard to quantify," she says.

Defining Strategic

Companies define strategic IT vendors as those whose products or services are essential to their IT infrastructure or play a key role in their business or future direction. "We use IBM mainframes, so what does that tell you?" asks Graham.

The number of strategic IT suppliers a company uses should be manageable: between eight and 20, depending on the size of your company, according to IT procurement professionals.

"You can't work at a solid level with 33 suppliers," says Fausett. "You have to pick those who will be there for the long haul, who want to work with you, who have real technical expertise to help you get that competitive edge."

Companies usually do a large volume of business with strategic suppliers, but volume is less important than the nature of the product or service the vendor supplies. "We have some vendors with whom we may spend several million dollars on a billing system, but I don't look at them as a key part of our strategy," Graham explains.

IT and procurement usually work together to identify and manage strategic IT vendors. At Nationwide Insurance Co. in Columbus, Ohio, the IT procurement group ranked its portfolio of vendors by the amount of money it spends with each. Then a panel of IT executives winnowed the list by discussing the top 25 in terms of products and services and their impacts on the company, including the vendor relationship, the vendor's position in its market and major projects in which the vendor plays a role.

Jockeying for Position

The Coca-Cola Co. in Atlanta has developed a comprehensive system to identify its strategic IT vendors, of which there are currently about 20, according to Chief Technology Officer Ed Steinike. It periodically issues a request for proposals inviting vendors to vie for strategic status. Using a scorecard, candidates rate themselves on a variety of criteria. They are also rated by IT, the procurement team, internal users of the product or service, references and consulting companies such as Gartner Inc. Coca-Cola uses a 1-3-9 rating to separate winners and losers more distinctly than a 1-to-10 rating would.

Agilent "inherited" most of its strategic IT vendors when it spun off from Hewlett-Packard Co. in 1999, but if an important new Agilent product or service depends on a particular technology vendor, that vendor will be considered for the list. "Volume plays a part, but product design and what we're trying to do from a technology point of view will be the key driver," says Fausett. The other major criterion is risk. You need to count on these vendors. "Software is different from other procurement," she explains. "You don't have the ability to plug in any of five vendors to make a system run, so risk mitigation becomes a driving factor. If Enron was in software, I don't think we would want to be dealing with them."

Melymuka is a Computerworld contributing writer. Contact her at kmelymuka@earthlink.net.

THE NEXT STEP

Read more about how to manage strategic suppliers after you've selected them
QuickLink: 32075

Ranking Your Vendors: For a step-by-step approach to ranking your vendors, go to:
QuickLink: 31953
www.computerworld.com

Tips for Finding The Vital Vendors

How vendors choose, use and reward special clients.

MOST BIG IT VENDORS have special relationships with customers they consider "strategic." Those customers develop personal relationships with the vendor at the executive level. They get to affect the vendor's product and service lines at the earliest stages, have their needs addressed during product development and even influence the vendor's strategic direction. How a company qualifies for that status and what that relationship entails varies.

Some vendors, such as Dell, keep the relationship on an advisory level. Others, such as Lotus, take it up a notch and encourage collaboration on product development. And some, such as Microsoft, develop multilateral business relationships. Here's how these three major vendors partner with strategic customers.

Dell Computer Corp.

Dell's Platinum Council of strategic customers provides feedback on its product line. Its sales force nominates a cross-section of educational customers, such as universities, as well as midsize, large and global corporate customers, including both high- and low-volume customers.

The most important criteria are executives' buy-in and their useful insights. "We talk to CEOs, CFOs and CIOs and look for customers who want to collaborate," says Steve Felice, vice president and general manager of Dell's large corporate accounts division. "We also look for relationships [at companies] where there have been issues such as problems with Dell as a vendor or with their equipment. We're looking to improve," he says.

At a two-day annual meeting, CXO-level representatives of the 60 Platinum Council members advise top executives, including CEO Michael Dell, on topics that might range from products and services to wireless. No salespeople attend the sessions. The meetings are "strictly feedback and advisory," says Felice. "Our strategic customers directly impact what we build." The vendor follows up with periodic smaller conferences on special topics.

PHILIP HUNT

Lotus Development Corp.

Lotus' strategic International Notes Customer Consortium (INCC) advises the company on software development. The sales and support teams nominate companies of various sizes, as well as government and consulting organizations. The main criterion is whether the customer is trying to use Lotus technology to differentiate itself from its competition by pushing a particular Lotus technology to its limits. Also key is a willingness to commit to the partnership. For example, one strategic customer worked with Lotus to develop a state-of-the-art mobile messaging product for its field sales force.

The INCC convenes several times a year in person and also holds teleconferences to advise Lotus on strategy, administration and application development. The group discusses key themes, features and customer requirements for new products "before we even put pen to paper," says Jeanette Horan, vice president of worldwide development and support at Lotus. For example, the INCC helped Lotus understand the need for a more dynamic user load-balancing capability in Domino to accommodate the trend toward server consolidation. "They like to get more users on larger, more powerful servers for better price/performance," Horan explains.

Lotus executives also develop personal relationships with INCC members, and the company encourages them to join the top tier of its beta program. Lotus sometimes assigns "outreach" development engineers to work with customers at their sites. Unlike Dell, Lotus includes its sales representatives in all its strategic customer interactions to keep them apprised of customer needs.

Countrywide Home Loans, a subsidiary of Countrywide Credit Industries Inc. in Calabasas, Calif., joined the INCC nearly two years ago, after giving unsolicited feedback on a new release of Domino software. Lotus was very interested in the feedback, which stemmed from problems Countrywide was having with its software, and invited Countrywide to join the strategic group. They have worked together ever since as strategic partners.

Microsoft Corp.

At Microsoft, strategic customers are much more than advisers or development partners; they're literally business partners. "A strategic customer is one with whom we have a mutually beneficial, multilateral relationship," says Jonathan Murray, Microsoft's vice president of global accounts and executive sales.

The business interests of strategic customers intersect with Microsoft's interests at many points. Strategic customers share many different kinds of business relationships with the software vendor, from commercial licensing agreements to services, consulting engagements, MSN alliances, equity partnerships and even joint ventures. For example, one major financial services company provides payment services for MSN properties and is also an early adopter that is pushing the limits of Microsoft's .Net technology for use with its own customers.

Strategic customers aren't nominated; they're developed. Of the 40 customers in Microsoft's global division, about a dozen are already at strategic status, and two-thirds of the rest are "well on the path," Murray says. "It's a matter of investing the resources and time and energy."

For its efforts to link with other businesses in as many mutually beneficial ways as possible, Microsoft gets stable, long-term relationships with global customers that will be early adopters and public advocates for its strategies. Its customers get input into Microsoft's product and service strategies. They also get high-level engagement throughout their businesses and personal relationships at the executive level. That, says Murray, means that if something goes wrong with the software or any business transaction, the strategic customer's CEO can just pick up the phone, have a word with his Microsoft counterpart, and cut through the red tape to get the problem solved.

Getting Your Foot in the Door

Here's what it takes to be a strategic customer at the advisory, collaboration and multilateral levels:

LEVEL 1
Advisory

- Show interest in the evolution of the product.
- Maintain a high order volume, or explain why you don't.
- Bring problems to the vendor's attention.
- Express a willingness to work with it.

LEVEL 2
Development Collaboration

- Use the vendor's technology as a key differentiator in your business.
- Push the technology to its limits; show the vendor where it falls short.
- Bring problems and challenges that may affect your customers to the vendor.
- Give constructive feedback.
- Express a willingness to work with the vendor on development.

LEVEL 3
Multilateral

- Work with the vendor on many levels and areas, from software to equity partnerships and strategic alliances.
- Express interest in developing the relationship further.
- Get CEO-level commitment.

THE USER PERSPECTIVE

Read more about Countrywide Home Loans' strategic relationship with Lotus.

QuickLink: 32076
www.computerworld.com

FAILURE TO COMMUNICATE

Despite decades of warnings, geekspeak is still sabotaging IT.
By Kathleen Melymuka

YEARS AGO, A CIO WAS presenting his case for a significant mainframe upgrade to the board of his large corporation. He covered all the geek buzzwords: CPU utilization, current and planned MIPS, DASD requirement, channel configurations. He finally noticed that all around the table, people were nodding off. Sensing that he was in trouble, he leaned forward and fixed his eyes on the CEO, determined to connect. "Let me make it simple for you," he said. "I'm talking thermal conduction modules: TCMs."

The terms may have changed, but the problem remains. Many IT people still talk technical, and until they abandon geekspeak, business will never understand the value of IT.

The space between business and IT is a "cataclysmic gulf," says Deryck G. Jones. As a former chief technology officer who is now president of OnDemand Global Solutions LLC, a consulting firm in Bethesda, Md., he's been on both sides. "Within this continental divide, budget overruns are born, serious errors in judgment are made, [and] organizations pay millions of dollars only to experience catastrophic failure," he says.

Geekspeak can be vague, meaningless or misleading. *CRM*, for example, is "amorphous at best," says Tim Stanley, vice president for IT at Harrah's Entertainmeot Inc. in Las Vegas. "Yet vendors claim to he selling it, so there must be someone out there buying it, which is pretty scary."

Many technology terms are meaningless outside IT. Take *regression test*. Say it and business people will have no idea what you're talking about, Stanley says. "It sounds like you're putting your software on the couch to talk about its early life," he says.

It's All Relative

Some terms have different meanings in different contexts. To an IT person, *IP* means *Internet Protocol*, but to his company's attorney it means *intellectual property*.

Still other terms can cause misunderstandings. For example, when a database senses that it may become corrupted, it shuts down, and that's called a "panic." It's a good safety measure, but you probably don't want to share the term with your business partners.

Some geek terms are almost comical for their opacity. Ever hear of a MUP? That's a double acronym that stands for Multiple UNC (Universal Naming Convention) Provider, a Microsoft proprietary code that facilitates communications between clients and servers in a network.

To some extent, a group may use jargoo to impress those not in "the club." But for IT, this typically backfires. "I tell [IT people] that they do not have to impress the users with techno talk; they have to impress them by explaining, in plain English, the benefits the users will receive from the technology we are providing," says Tony Romero, CIO at Mitsubishi Motor Sales of America Inc. in Cypress, Calif.

For example, saying, "You will be able to access the Internet faster because we upgraded the network," is much more impressive than, "We added six T1s to our network to increase our bandwidth," he says.

But there's a place for geekspeak, just as there is for any jargon that enables people who share a discipline to talk in shorthand. The purpose of language is to communicate, says Virginia Robbins, IT director at Chela Financial, a $2.2 billion financial services company in San Francisco. And for technicians of any specialty, the rules are the same. "Within our group, if the use of jargon or other specialized terms increases understanding and efficiency, then use it," she says. "When speaking to or about outsiders, change the language to ensure understanding."

That may mean joining in the jargon of your audience, she suggests. "We in IT need to use credit jargon when we speak to credit people or about a credit process, sales jargoo with salespeople or about sales workflow," she says. "And sometimes we need to educate our audience to our specialized terms so they can understand us, just as they need to educate us."

IT managers use a range of gambits to deal with geekspeak, from levying fines to providing translators. But perhaps the best approach is to persuade your people to simply think about what they're really trying to communicate. Take *EAI*. Whether you use the acronym or spell out *enterprise application integration*, says Stanley, "to a business user, that means essentially nothing other than a lot of money."

Infrastructure issues have no intrinsic value to business, he says, so talk about it in terms of business outcomes: If this system goes down, here's the impact on our customers. If we migrate the technology underneath to this new architecture, outages won't affect the customer, so we'll increase revenue.

Getting IT people to speak plain English will not only enhance their image in your company, but it will advance their careers as well. "One of the factors that helped transform my career was my ability to alter my geekspeak," says Jones. "Somewhere along the road, I stopped alienating those around me. I started talking like a real businessman instead of a geek."

It comes down to what communication is all about, he says: "It is not only speaking on the other's level but in the same language, and that language needs to be the language of business, not geekspeak."

Melymuka is a Computerworld contributing writer. Contact her at kmelymuka@earthlink.net.

GEEKSPEAK vs. PLAIN ENGLISH

IP packets	Data transmitted over the network
Trojan	A malicious computer virus
Worm	A computer virus that can replicate itself
Open architecture	Standards-based computing, enabling plug-and-play compatibility
Proxy server	A computer that manages data communications
Kernels	Core computer programs
Clouds	Large national networks, like the telephone network
Bandwidth	How much data can be transmitted at one time
VPN	A private, secure communications path within the Internet
ISP	A company that provides Internet access and services
Pipes	Communication lines
Mirroring	Keeping two copies of data
Protocols	Rules for transmitting data

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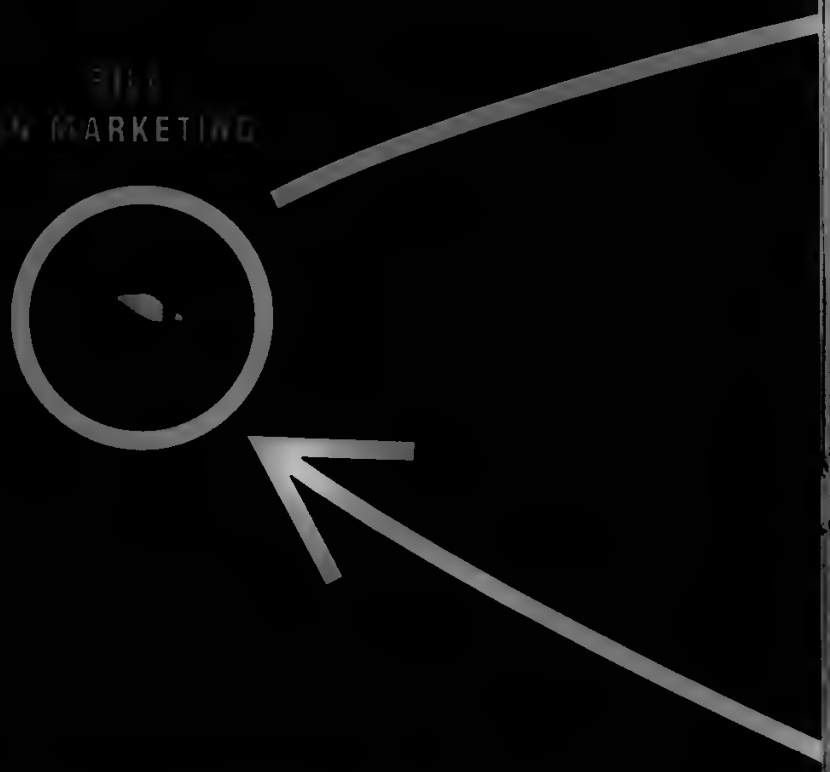

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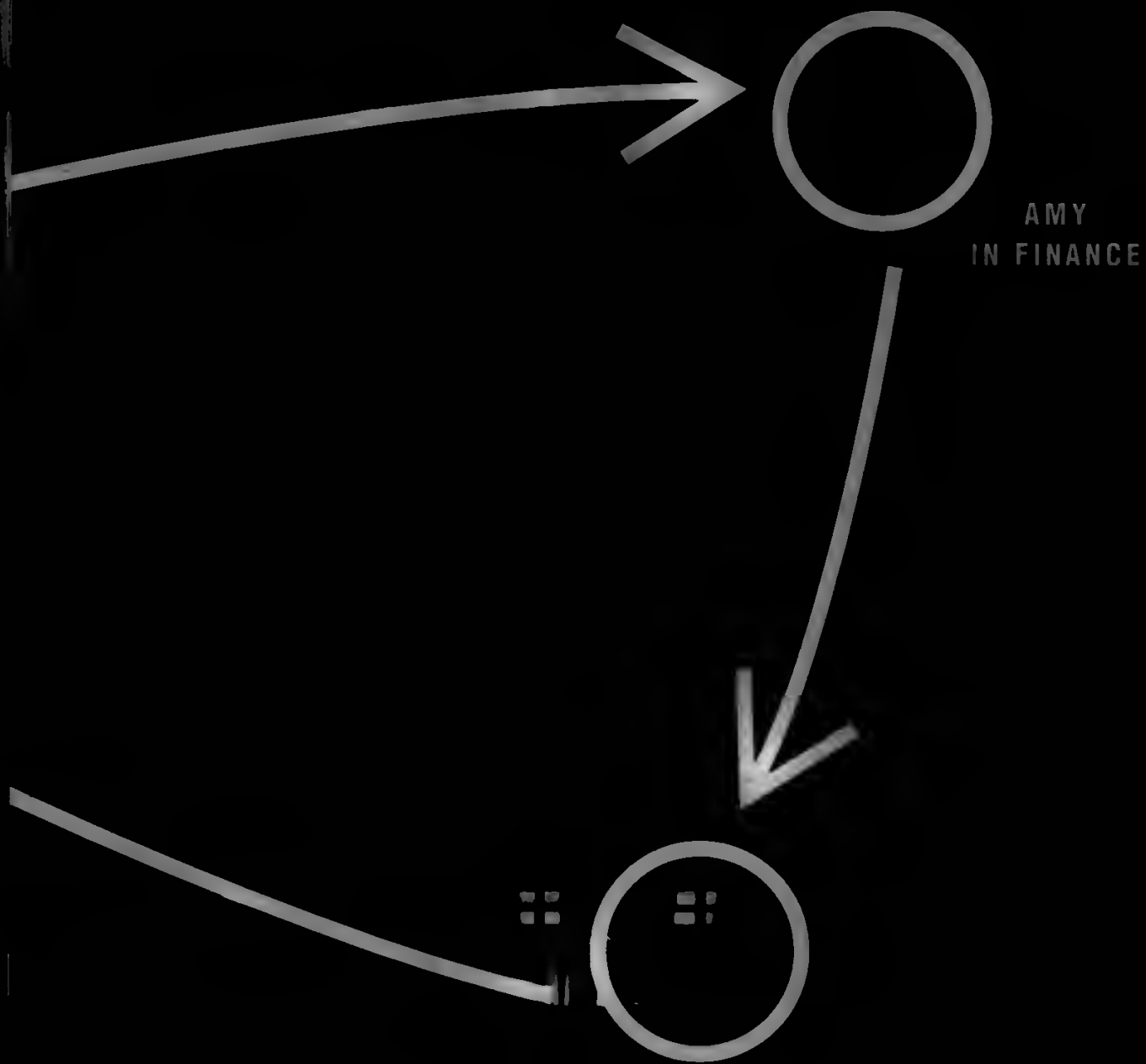


IBM.

Sizing Up Outsourcers

A new set of metrics helps IT managers measure providers' performance and reduce their own risk.

By Matt Hamblen

OUTSOURCING contracts are expected to increase dramatically in number in coming years, forcing IT managers to face an array of puzzling choices in picking providers and monitoring contracts.

For example, if your company needs to outsource only one department or function, such as the help desk, would you know which outsourcers are best in that area? Could you compare the abilities of a number of providers with any objectivity beyond their bids? What criteria would you use to measure performance over the course of a contract?

Answers to those questions may soon be possible with a detailed outsourcing rating system being developed at Carnegie Mellon University in Pittsburgh with the help of several private companies representing both users and vendors. Called the eServices Capability Model (eSCM), the first version was announced in November. A second version was released this month for use by the public and beta testers.

The model (*http://sourcing.cs.cmu.edu/escm*) uses 93 criteria, called "practices," to assess an outsourcer's capabilities in five areas: organizational management, people, business operations, technology and knowledge management. These practices are distributed across various phases of outsourcing. Independent evaluators trained in the model by Carnegie Mellon confer a rating from Level 1 through Level 5 following a comprehensive review (see diagram).

Once audits are done in coming months, outsourcers are likely to publicize an eSCM seal of approval as a way to woo customers. The eSCM ratings are widely expected to be used the same way customers now use the Software Engineering Institute's Capability Maturity Model (CMM), also developed at Carnegie Mellon, to assess software development companies.

A version for use by customers to conduct their own assessments of outsourcers is being developed for release next year, according to officials at Carnegie Mellon. But even before then, an eSCM rating conferred by an independent auditor will be valuable for CIOs researching and gauging outsourcers, says George Breneckle, CIO for the University of Pennsylvania Health System, which has four hospitals in Philadelphia. "In order for the outsourcing arrangement to work, you have to have agreed-upon measures of performance and expectations," Breneckle says. "If you don't set those upfront, you get into a sort of push and pull, and somebody's left unhappy."

Much of Breneckle's 30-member staff is devoted to overseeing administration of a comprehensive IT outsourcing agreement with First Consulting Group Inc. (FCG) in Long Beach, Calif. Virtually all IT functions outside of telecommunications are part of the contract that started in January 2001 and could be extended beyond its five-year term. The deal saves the health system $19 million. Breneckle says he expects to use the CMM rating system to assess FCG's performance but hopes to substitute the new eSCM rating system.

"I am hoping the new system coming out will be valuable to me as an independent, unbiased metric on which to measure continuing performance of my outsourcer," Breneckle says.

Finding Room for Improvement

FCG underwent a pilot eSCM evaluation in July 2001, with evaluators from Carnegie Mellon scouring the company's records and interviewing its customers and employees. FCG has helped the school refine the rating process by attending strategy and feedback sessions and suggesting new wordings for practices, as well as practices to cut.

But the vendor also discovered areas where it could improve services, says Guy Scalzi, an FCG executive and a former health care CIO. "We're starting to beef up areas where we didn't do well," Scalzi says. One example is better planning for the first days of a contract with individual customers. However, "we got very good ratings on our people and experience," he says.

Jun Scarpelli, vice president at Ciber Inc., an IT services integrator in Greenwood Village, Calif., predicts that eSCM will be embraced by the industry. "Any tool a prospective customer can have to better understand and choose firms to help them be successful, that's a value," he says.

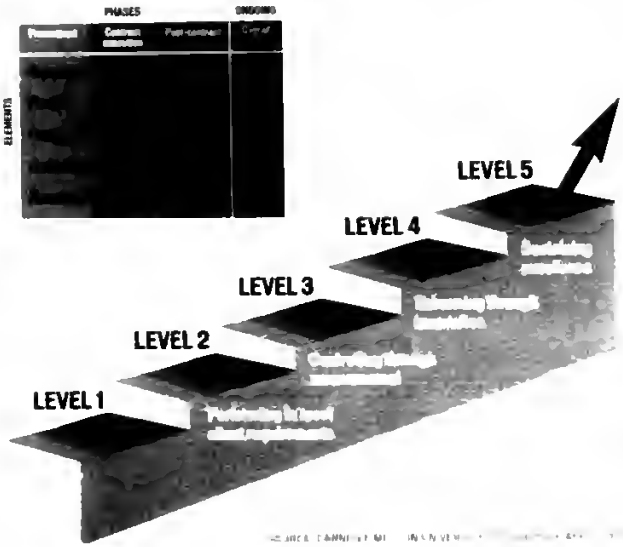
Jane Siegel, director of the Information Technology Standards Qualification Center at Carnegie Mellon, says she hopes the eSCM will help lower the risk of outsourcing. She points out that a study by Dataquest Inc. in San Jose shows that up to 25% of outsourcing relationships fail within a two-year period.

"With so much money going into outsourcing and such weak information and lack of standards, it's a little distressing," Siegel says. "A university can lead this in a neutral way," which can be especially helpful as corporate accounting scandals are making headlines, she adds. "Companies want to know if they have people doing things in an honest and reliable way."

Modeling for Success

The eServices Capability Model under development at Carnegie Mellon University is currently configured to rate outsourcing providers in 93 areas or "practices." The work has been coordinated by staffers at Carnegie Mellon with the assistance of Satyam Computer Services Ltd. in Hyderabad, India, and Accenture Ltd. in New York. Several pilot test companies have provided additional help.

An eSCM evaluation team conducts interviews with the executives, employees and customers of an outsourcing company and reviews written documents. The team then confers a rating from Level 1 to Level 5 and tells the outsourcer which practices were satisfied and which remain to be fulfilled. Level 1 is the starting point. Level 5 means the outsourcer has sustained excellence in all of the practices for at least two years.



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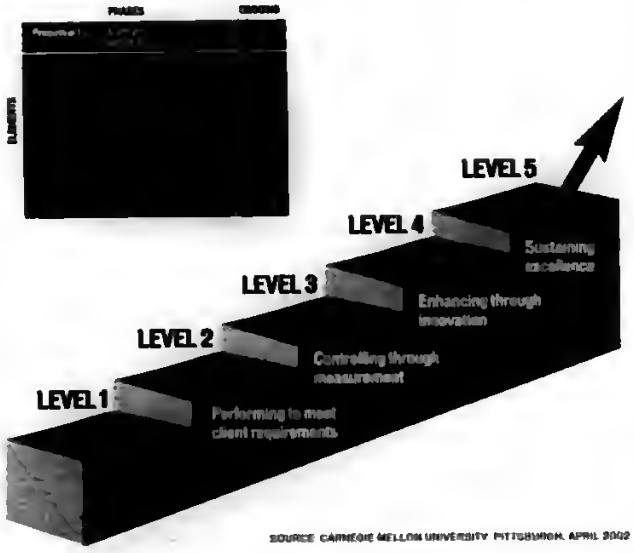

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I have a computer science degree and a background in Web development, plus some experience in IT training. Additionally, I have several certifications, including Microsoft Certified Systems Engineer, Microsoft Certified Database Administrator and A+. I'm trying to think of new avenues to explore, since I don't seem to be developing any traction in the standard commercial markets.

— ANY THOUGHTS?

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Today's textbooks, which all come with supplementary CD-ROMs, offer instruction for K-12 education that's focused on e-learning, teacher training, using computers in the classroom to translate standard subject matter into multimedia presentations and transforming school-parent interactions through Web-based communication. There are also distance learning programs, which are used by both institutions of higher education, including the University of Phoenix; e-learning software development initiatives, such as those from Washington-based Blackboard Inc.; and courses provided by a multitude of technical certification providers.

Because technology education is becoming a formal academic discipline, graduate programs, such as Stanford's one-year Learning, Design and Technology program, combine education courses and computer science and other classes toward a master's degree in education.

PEGGY GUNTER is an expert in high-tech careers and recruitment. Send questions to her at www.computerworld.com/career_adviser.

Dear Career Adviser:

I have been a Web developer for two years, and I'm trying to get a handle on this job market in terms of growth and whether I should try to stick with a technology company or move into the IT department of a health care or manufacturing organization.

— FIGURING IT ALL OUT

Dear All:

Take a look at "Bouncing Back: Jobs, Skills and the Continuing Demand for IT Workers," published in May by the Information Technology Association of America (*www.itaa.org*) in Arlington, Va. The study notes some interesting data that may help you shape your career.

First, some 10 million U.S. workers hold IT jobs, and 92% of them work for non-IT companies. Data shows that IT firms have laid off 14% of their workers, compared with 4% at non-IT firms, with technology support positions being the most vulnerable.

Hiring managers expect to fill 1.1 million jobs in the next 12 months. IT firms typically hire the most qualified candidates, while non-IT companies hire more junior- and senior-level candidates and people with certifications.

Finally, your Web development skills appear to be in highest demand at non-IT companies whose Web sites involve online transactions, catalog sales, electronic procurement and e-commerce. And you could further enhance your employment value by achieving certification and formal on-the-job-training. ◗

WORKSTYLES

Eastman IT Keeps Customers Happy

What are the most critical systems supported by your department? "We're the liaison between our IT group and our internal customers, although we're branching out to our external customers, as well. We're responsible for the strategic alignment between their business drivers and our IT project portfolio. Each person in my group is aligned with Eastman's various functional areas, as well as our different lines of business, whether it's coatings, adhesives, specialty polymers, etc.

"My group is very customer- and business-oriented. Most have IT backgrounds, but several came from the client areas that we serve. Their offices are dispersed throughout our site to be in closer contact with customers."

How would you describe the pace of the work? "It's pretty steady, and there are times when we'll work more than 40 hours a week, but that's usually during major implementations of applications, when my group makes sure things go smoothly and customers are satisfied."

Describe the IT culture at your company. "It's pretty casual — no ties, no suits. The relationships are pretty informal — people talk to who they need to to get things done."

What do you like best about how career advancement and training are handled? "There are two separate career advancement tracks: one for managers and supervisors and the other is a technical, nonmanagerial track.

What I like is that both advancement ladders are given equal prestige. If you follow the managerial track, your title would be manager, and if you are on the technical side, you'd be a senior associate. In the eyes of people in the organizations, as well as in terms of the types of responsibilities and duties you have, you're given the same amount of trust and recognition.

"Also in IT, we have a group called the IT leadership council. When the CIO wants to talk about IT initiatives, he convenes the council, which is made up of both senior associates and managers."

Eastman Chemical Co.

Interviewee: Tom Maurer, supervisor of customer account management

Type of business: Manufactures chemicals, fibers and plastics.

Main location: Kingsport, Tenn.

Number of IT employees: Nine in customer account management group; 400 in all of IT

What makes your company's IT department unique? "What most people are surprised at is our IT employee [turnover], which is 3% per year. We're also considered a pioneer in e-commerce in the chemical industry."

What aspect of the work do you look forward to? "When we have a successful implementation of a new application, and we can see the business advantage of doing it."

What aspect do you dread each day? "Having to work to convince people that a given project or application is reasonable, and getting the doubters over the fear that we're biting off more than we can chew or that something is not going to work."

– Mary Brandel
brandelm@attbi.com

System Analyst sought by pharmaceutical R&D co. in Princeton, NJ. Must have Master's Degree (or completion of coursework) in Comp. Sci. or related field. Knowledge of JAVA, C, C++, Perl, Visual Basic, SML and relational experience using CGI, HTML & JavaScript required. Solid background in networking, UNIX systems administration, database and Internet protocols a must. Pharmaceutical experience a plus. Send resumes to Kathleen Rust, **Job Code ZY-382**, Bristol Myers Squibb, P.O. Box 4000, Princeton, NJ 08540. Mail Stop: E-14-12.

S/ware Engineer. Devel and modify programs, apps s/ware, & util progs. Tools incl Coldfusion, HTML, DHTML, SQL, PL/SQL, Java, XML, Oracle, and JavaScript. Bachelor degree in CS, Eng'g, MIS, or sim field, or equiv. req'd, as to 2yrs exp. as S/ware Eng'r or in a computer prog'g. or eng'g position. Competitive salary. Resumes to W. Tankersley, Job # 1686.27/28, Computer Task Group, Inc., 5875 Castle Creek Pkwy. Ste 208, Indianapolis, IN 46250.

Information Systems Analyst. Develop, test & document application software for systems w/ use of Visual FoxPro, ACCESS, Visual Basic, SQL & Crystal Reporting on client/Server & ODBC & dev. web based reporting. Req: Bachelors in Information Systems. 40 hr/wk. Job/Interview Site: San Diego, CA. Send resume w/ salary requirements to: CASAS Foundation for Educational Achievement, P.O. Box 80488, San Diego, CA 92138-9722.

Ventyn seeks Sr. DB Engr. for Portland, OR office. DESC Prov. comp. sys. consult. to max. I.S. efficiency; anlyz. exist. I.S. & det. user reqs; Mng. dsgn, dev. & impl. of RDBMS & rel. c/s & web progs. & aps. utils. SQL, VB, ASP, COM, JScript, & XML on Win & Unix o/s. REQ: BS in Engr, CS, Math, or Physics + 5 yrs. exp. dsgn, dev, & impl RDBMS & rel. c/s & web progs. & aps. util. SQL, VB, ASP, & COM on Win o/s. Prem. sal. + benes. Pls reply to J. King, Job# VT-103, 11255 Kirkland Way, Kirkland, WA 98033.

Information System Analyst. Design &amp. implement optimal accounting/financial systems. Prepare user manual. Serve as inhouse expert. Req: Bachelors in Busn Admin./Mgmt. W/courses in Acct. Finance. Stats & computers. 40hr/wk job/interview site: Fontana,CA. send resumes to SAAB Enterprises dba Enjoy Foods International,10801 Beech Ave.,Fontana, CA 92337.

Systems Analyst needed to South NJ office to plan & develop methods for computerizing business tasks & for improving computer systems that are already in use & for developing plans to acquire new systems & equipment using technologies such as Lotus Notes (design and administration), Windows NT/95/98, C & Unix. Only experienced candidates need apply. Send resume to: Associated Press, Human Resources - JS, 19 Commerce Court West, Cranbury, NJ 08512.

Systems Analyst to develop web sites using ASP, VB & IIS. Coding: web HTML, VBScript & JavaScript. Prepare graphic design/layout. Design database schemas on MS SQL servers for e-Commerce large data application sites. Incorporate stored procedures in web page code. Test/revise web sites on test servers. Document project specifications. BS-Electrical Eng. or Comp. Sci. + 2 yr. exp. Apply: Venturesforth, Inc., 1835 Savoy Drive, Ste. 216, Atlanta, GA 30341 with proof of work authorization.

Lead Web Technologist to assist in creation & development of linkages between enterprise/legacy system & online sites & services using knowledge of client-server architecture & relational database systems & applications. Migrate & integrate eGain CRM (Customer Relationship Management) Tools with Genesys CTI (Computer Telephony Integration). Work with advanced development & maintenance tools such as HTML, JavaScript, ClearCase, SQL, Oracle, Photoshop, ASP, XML, CGI etc. Evaluate & recommend third party vendor technologies & develop growth plans. Required: M.S.C.S. & 2yrs. exp. M-F, 40/hrs/wk. Frequent relocation within the U.S. may be necessary. Send resume to J. Brigham, HR A91B, TekSystems, Inc., 7301 Parkway Drive, Hanover, MD 21076.

Analyst II, Programmer. Duluth, GA. Dev./mod./impl. complex info. sys. Form sys. scope & objs. through analysis/research/fact finding. Impl. well designed, efficient adv. prgms. that conform to co. stds. Design/execute thorough & accurate test plans, prep. estimates for new projs. Req: Bach./or equiv. in IT, Math or Eng. (in lieu, will accept equiv. progr. work exp.). Wrtg. knowl. (acad. crswk. or exp.) of Stat. Utils./Tuning tools. DB2, CICS, Xpeditor, SQL, Abend-Aid, Intertest, SPUFI, QMF, COBOL, JCL, Easytrieve, TSO/ISPF, Endevor, IBM Utilities, VSAM & File-Aid. Resume: Ms. L. Serroz, Federated Systems Group, 5985 State Bridge Rd., Duluth, GA 30097.

Programmer/Analysts/S/W Engr. Need S/W prof'l w/hands-on exp in Java, JavaBeans, Servlets, HTML, DHTML, JavaScript, Lotus Notes, Domino, EJB, weblogic, Crystal Reports, Lotus Script. Send resumes to: Midrange Solutions, Inc., 20 Hillside Avenue, Springfield, NJ 07081. E-Mail resumes@pinnacleusa.com

Software Engineer. Req: min. BS in CS, Engrng, Bus., or rel + 5 yrs. exp. incl. JAVA, EJB, SQL, XML/XSL, RDBMS, Internet technologies, Windows & UNIX to design, dev., & debug internet-based and web accessible fin. apps & JAVA-based Web apps.; design & code apps, features, functions to spec; modify & troubleshoot existing EJB & JAVA codes; dev & execute tests, resolve tech. issues. Communicator Inc., White Plains, NY. Fax resume w/cvr ltr addressing reqts (no calls) to HR 914-872-2808. Ref: 956.2.

Software Engineer: design, develop & implement software applications incl-NetVendor CW product. Analyze requirements & develop software solutions. Environments: Java/c++, RMI, CORBA, EJB, DCOM and ODAD/OOP methodologies. Customize NCE 4.2 product. Resume to: Lindsay Whitfield, NetVendor Inc., 3525 Piedmont Road, Bldg. 6, Suite 700, Atlanta, GA 30305.

Software Developer. Plan, build and deploy Dynamo-driven web applications for clients and solution partners, using Java, C++, object oriented development, SQL, Unix, NT client server development and architecture. Min. req'ts: BS, Comp. Sci., E.E. or related area and 4 yrs exp. in job or with enterprise solution design, architecture and implementation duties, using knowledge of relational databases. Send resume to: HR, ATG, Inc., 25 First St., Cambridge, MA 02141. an EOE.

Project Engineer wanted by Global Mktg Communication Co. in Manh. Dvlp IT projects, set up dvlpmnt environments; implement innovative server tech solutions, estab procedures & protocols for data archiving; dvlp web-based appls & prgs. BS in Comp. Sci or Engr & 1 yr exp in job offered. Respond to: IPF/HR Dept., PO Box 4241, GCS, NY 10163.

Associate Research Scientist sought by a pharmaceutical research & development company in New Brunswick, NJ. Must have M.S. degree in Pharmacy or a related field and at least one year experience in formulation development and/or manufacturing of clinical or commercial oral solid dosage forms. Experience should include using pharmaceutical processing equipment and analytical techniques, such as HPLC, DSC, Dissolution, X-ray diffraction, UV or spectroscopy. Candidate is expected to generate data for regulatory filings, conduct optimization studies and scale up, conduct stability studies, propose specifications, and transfer the processing technology to the manufacturing division. Ability to design and conduct experimental studies, evaluate and interpret research data, write scientific reports, and participate in interdisciplinary project teams, a must. Forwarded resumes to Kathleen Rust, Staffing, Bristol Myers Squibb Company, P.O. Box 4000, Princeton, NJ 08546. **Job Code: CP-483.**

Outsourced Qualifications Lead Engineer. Manage externally outsourced qualification projects. Lead testing on 3rd party qualification projects. Min. requirements: BS, Comp.Sci., M.I.S or rel. plus 2 yrs QA experience using winrunner and silk performer and project management experience. Send resume to: HR, ATG, Inc., 25 First Street, Cambridge, MA 02141. an EOE.

Information Systems Analyst. Design lan based systems on Windows 95 & Windows NT/2000 using Win32 & Win2K on Unix w/use of Visual C++/Visual Basic, JAVA, Javascript, Servlets, VBScript, ASP, Perl, NSAPI, TCP/IP & Windows Sockets. Req: Bachelors in Comp. Sci or Mgmt. Info. Systems. 40hrs/wk. Job/Interview Site: New York, NY. Send resume to: Nagarro, Inc., 239 Broadway, 22nd Flr., #2200, New York, NY 10279.

System/Network Administrator-administer systems including hardware, operating system & disk support. Responsible for network & window administration & troubleshoot complex problems. Req: B.S. Computer Science or related field & 3 yrs Solaris system administration/troubleshooting experience & disaster recovery experience. Senior Oracle Developer- Req: B.S. Computer Science or related field, experience in designing, coding complex algorithms & routines using Oracle & Perl. Apply to: Eventiva, Inc. Attn: C. Eng, 440 Wheatena Farms Rd., Milford, CT 06460.

Software Engineers, Programmers and Jr. Programmers. Design, develop, test and implement specialized applications in: (A) C, OAS, MTS, VB/ASP, IIS, XML, XSL, Visual Interdev, SQL Server, Oracle and related tools. Access and 3rd party utilities. (B) Financial applications with Oracle and related tools, Java, Pro*C, Erwin, HPUX, SQL*Loader, Unix Shell Scripting. Prevailing wage /benefits. Experience required. To apply or for detailed info, send resume or contact: Ratan Elugant, enGenius Consulting Group, Inc., 3100 Breckenridge Blvd., Ste. 100, Duluth, GA 30096. EOE.

SOFTWARE ENGINEER. Design, configure, integrate, implement & install SAP R/3 using ABAP & other software tools. Plan enterprise-wide systems & design solutions. Develop interfaces using EDI/ALE IDOCS, Workflow & SAPOFFICE. Upgrade SAP systems using Upgmaker, SPAU & SPDD analyses. Perform Data conversion using Call Transaction Method, Batch Input Method & BAPI. SAPSCRIPT using ZPI, in ABAP. Archive documents using Archive Administration. Generate Reports using Report Writer & Report Painter. Provide knowledge transfer to clients. Must have MS or equivalent in Comp. Sci or in any Engineering field & 3 yrs of relevant exp. We also consider candidates with BS & 5 yrs exp. Job in Charleston area & other locations. Multiple positions. $70K/year. Send resumes to HR, U.S. Professionals, LLC, 516 Rewalens Hills Dr., Dunbar, WV 25064. Fax (304) 768-4047. E-mail: jobs@uspcorp.com

Programmers, Jr. Programmers, Software Engineers. Analyze, design, develop apps in (a) PVCS Tracker, Star Tool, Lotus Notes, Compaware, C, C++, Oracle, COBOL, Test Director and related testing and programming tools. (b) Weblogic, Corba, Java, SAP ABAP/4, Visio, Rational Rose, Clearcase, Cold fusion. (c) Sybase, Lotus notes, Replication Server, Toad, Rapid SQL, C, C++, PFC, Power Designer, Rational Rose. (d) Cold Fusion, Rational Rose, Sybase, IIS, Iplanet, XP, ASP, XML, JSP, Oracle. (e) Websphere Homesite, Corba, Rational Rose, Oracle, EJB, C, C++, DB-2, Websphere Studio, C, C++, (f) Oracle/Sybase DBA and Adaptive Server for manufacturing and service organizations. (g) Peoplesoft Financials-AR, AP, GL, Oracle Peoplebooks, Peoplecode, nVision, Crystal Reports. (h) Informix, DG/UXF e 11, DYNIX/PTX, C, Oracle, Unix, SQL Forms and Pro*C. (i) MQ Series, Shell Scripts, Java and related tech. Oracle & related tools, SQL Loader, Pro*C. US workers only. Consulting positions requiring travel. Prevailing wage/benefits. Send resume to: HR, Datum America Ltd., 850 Bryce Rd., Suite 7, Bridgeville, PA 15017.

Software Engineer. Develop software for optical measurement machines. Design 3-D geometric algorithm modeling and software implementation. Set up mathematical modeling and software implementation for system optimization. Use tools: Mathematica, Matlab, MathCad, Visual Basic, Visual C++, C and Unix-Solaris. Degree and exp. req'd. Send resume to HR Administrator, Optical Gaging Products, Inc., 850 Hudson Ave., Rochester, NY 14621.

SOFTWARE ENGINEER

Design, develop and test computer software for business and scientific applications applying principles and techniques of computer science and electronics. Analyze software requirements for feasibility of design and hardware interface. Design and direct software system testing procedures using expertise in client server development tools (Visual Basic & 6, Microsoft SQL Server 2000 7.0, Crystal Report 8.0, XML/SPY 2.0, Erwin 4.0), intranet web based development tools, including Active Server Pages, VB Scripting, Java Scripting and JSP and energy trading and risk management systems, including OpenLink, Triple Point and ZaiNet. Requirements: Bachelor's degree in Computers or related field and ten years of experience as a software engineer or computer programmer. Salary: $61,000/yr. Working Conditions: 8:00 a.m. to 5:00 p.m., 40 hrs/wk. Apply: Manager, Beaver County Team PA CareerLink, 2100 Ninth Ave., Beaver Falls, PA 15010-3957. Refer to Job Order No. WEB 2675584.

Software Engineer. Design, write and test code. Code test and debug software for web-based management of software engineering tasks. Analyze and document problem solutions. Min req'ts: MS Comp. Sci., Info. Systems, or a related area, plus 1 yr. exp. or job or in software eng'g position w/ design analysis, Java coding & object-oriented design duties. Send resume to: HR, ATG, Inc., 25 First Street, Cambridge, MA 02141. an EOE.

Senior Systems Analyst will be responsible for performing Oracle database administration on the Company's Oracle-based human resources and payroll relational database systems while applying in-depth knowledge of Oracle HR/Payroll functions and multiple database management systems (DBMS) technologies including data warehousing methods, replication strategies and distributed database and network design. Will also evaluate software and hardware technology and advise on methods, tools, alternative solutions, and provide Oracle database/Financials administration support to production, Quality Assurance and development teams. Will advise developers on issues of query optimization, index utilization, coding standards and best practices. Will trace SQL statements; explain plan TKPROF output analysis; and coordinate software upgrades both on the database and applications side. Will be responsible for database creation, backups; restores; performance tuning; code migration; disk space management; environment planning; resource monitoring, database network maintenance and setup; and trouble shooting SQL statements, locking issues, and network and performance problems. Will establish technical standards and guidelines for the effective use of databases. Will load and configure Oracle database and Oracle Application (HR/Payroll) software and Oracle Forms and WebServer. Will perform Unix shell scripts creation, Unix process and resource monitoring. Requires Bachelor's or equivalent in Computer Science, Engineering, Mathematics, or Physics, plus two (2) years experience in Job Offered OR two (2) years experience in Oracle or PowerBuilder administration tools development. Candidate must also possess demonstrated expertise supporting large scale 24x7 Oracle HRMS application in production environments, demonstrated expertise developing and managing HR/Payroll software configuration database management systems in UNIX environment, and demonstrated expertise developing Oracle forms/reports and writing PL/SQL stored procedure and Unix cron. Salary: $67,750/yr. M-F 9AM-6PM. Send 2 resumes to Case #2002 325, PO Box 989, Concord, NH 03302-0989. EOE. Applicants must be U.S. workers eligible to accept full-time employment in U.S.

Technical/IT Positions
Echosphere Corporation, a subsidiary of Echostar Communications Corporation, is a world leader in the design of electronic systems for home satellite reception. We currently have several openings in our Littleton and Englewood, Colorado offices, in a number of technical positions including: Sustaining Engineer, Digital Design Engineer, Software Configuration Specialist, Quality Analyst Developer and all levels of Software Engineer, Analyst Developer, Programmer /Analyst, and Systems Analyst; as well as other technical positions. Please visit our website at www.dishnetwork.com for a complete listing of available job openings and further information on the positions. Echosphere Communications Corporation is a equal opportunity employer

Principal Database Developer
TeleSpectrum Worldwide, Inc is seeking a principal database developer to lead technical resource projects, coordinate efforts of the project team, application, technology prototyping, and mentor other developers in its Salisbury, NC office. Candidates must possess an Associates degree and at least 4 years of relevant development experience with Visual Fox Pro, and PL/SQL. We offer $65,000 plus excellent benefits, a great work environment. Respond to TeleSpectrum Worldwide, Inc, 118 South Main Street, Salisbury, NC 28144, Attn: AH/IT

Software Consultant (multiple openings) - Consult with client to define EDP need or problem; conduct study to obtain and analyze data on client's EDP requirements; determine custom software solutions and report findings and recommendations to client; assist in implementation of solutions, and use one (1) or more of the following AS/400, RPG/400, CL/400, SDA, RLC and/or MS Windows. Req's. Master's in Computer Sci Systems Analysis, CIS, MIS, Computer Applications, Systems Management, Computer Engg, Computer Sci and Engg, Electrical Engg, Electronic Engg, Electronics and Communication Engg, Mech Engg, Statistics or Math or its equiva. in edu and exp. plus 3 yrs exp. in job offered or 3 yrs exp in a related occup. as a Programmer Programmer Analyst, Systems Analyst, Software Engineer Project Associate or Consultant. Will accept a bach's degree, or a foreign equiva. degree, followed by at least 5 yrs of progressive exp in the specialty, in lieu of the required edu. and exp. $64,376.00 /yr., 40 hrs/wk., 8a-5p, M-F. Submit resume to Michigan Dept. of Career Development, PO Box 11170, Detroit, MI 48211-1170. Ref. No. 202217. Employer Paid Ad

SENIOR SALES ENGINEER
Trend Communications, a telecommunications test equipment company in Madison, AL seeks Senior Sales Engineers. We have openings in Denver, Miami and other U.S. locations. Serve as primary point of contact for management and engineering representatives of network service providers seeking network services and communication test equipment; communicate in both highly technical and non-technical terms the theories of SONET (Synchronous Optical Network) and SDH (Synchronous Digital Hierarchy) networks and cost-effective test solutions, and services to support them. Requires 4 years of related experience in network services and products sales including 2 years experience in a product management role working with engineers on product designs and releases for SONET and SDH Networks. Respond by sending resume via surface mail only to Greg Curtis, Trend Communications, 102 Waterford Circle, Madison, AL 35758, indicate whether you are interested in the position in Denver, Miami or in other locations and refer to job # 3564BA

Prog/Analysts needed nation wide may req travel/reloc. Need Bach + 2yrs exp. in skills: 1st req's VB, ASP, python, 2nd req's IBM mainframe, Cobol, VSAM, DB2, JCL, Assembler. Send resume to Future Tech Consultants LLC, P.O. Box 921516, Norcross, GA 30010

COMPUTERS
Radiant Soft Sol. Inc., a S/ware Consulting Company seeks to fill the following Multiple Openings in Arlington Heights, IL & unanticipated locations in the US. Sr Software Consultants (BS + 3 yrs exp), Business/Systems/Programmer Analysts (BS + 2 yrs exp.), Database Analysts (BS + 3 yrs exp.), Network Analysts (BS + 2 yrs. exp.) and IT Project Managers (BS + 3 yrs supervisory exp). Respond by resume to HR, 959 E. Golf Road, Arlington Heights, #1125, IL 60005

Knowledge & Information Management Consultant wanted by management consultant firm in Bridgewater, NJ. Must have Master's Degree in IS or related field and three years of experience with IT in a global pharmaceutical industry. Proven experience in corporate-wide technology implementations as well as ability to "translate" between business and IT organization within the pharmaceutical industry is required. Prefer Hands-on experience with Data Warehouse, Balanced Scorecard Web Portal and/or e-business solutions like SAP. Demonstrated ability to complete multiple, simultaneous projects using industry-standard project management applications and tools. Must be able to demonstrate ability in deal with unstructured assignments that require effective communication and negotiation skills. Send resumes to Jean Chesterfield, VP of HR, Taratec Development Corporation, 1170 US Highway 22, Suite 302, Bridgewater, New Jersey 08807

WEB DEVELOPER to design develop, implement and customize e-commerce websites using TCL, ASP and Vignette StoryServer; create user interface with HTML, CSS, JavaScript, Oracle and Access, and customize Java audio and chat applets and discussion forums using CommandScript. Require B.S. in Mechanical Engineering/Computer Science and three years experience in the job offered or any experience providing skills in described duties. Competitive salary and benefits. Apply with resume to: Chief Operating Officer, Epic Learning Inc, 4151 Ashford Dunwoody Road, Suite 220, Atlanta, GA 30319

Oracle Developer Sr. A teleservices company in King of Prussia, PA is seeking a senior Oracle Developer who will have responsibility for leading technical resource projects, coordinate efforts of the project team, application, technology prototyping & mentor other developers. Candidates must possess an Associates degree & at least 4 years of relevant experience in Oracle, Win NT & PL/SQL.& 2years of Pro*C. We offer a competitive salary, excellent benefits, & a great work environment. Respond to Attn: BS/IT, TeleSpectrum Worldwide, Inc, 443 S. Gulph Road, King of Prussia, PA 19406

Programmer/Analysts needed for Houston based firm to plan, develop, test, document computer programs, write software based technical specifications and maintain software programs and test systems. Must have a Bachelor's in Computer Science or Engg and 2 yrs exp. in job offered or as Software Engineer. Fax resume to COMPOSOFT, INC., HR Dept. at 281-272-2515. Ref Code: Put PA0602H on the resume.

Dictaphone Corporation has an opening in our Stratford, CT office for a Consultant Engineer. Must have M.Sc. degree in Comp. Sc., Electrical Eng. or related field plus 2 yrs. of speech recognition software dvlpmt. & obj. oriented design exp., as well as exp. w/ language identification algorithms & Windows NT programming using C/C++. Please send resume to Lisa Ferraro, Director of Human Resources, Dictaphone Corporation, 3191 Broadbridge Avenue, Stratford, CT 06614. AD CODE-MG.

CIGNIFY, a leading information technology company in time & attendance systems currently seeks applicants for the following position in its Atlanta, GA offices. Software Architect. Applicants for this position must have a master's in computer science, engineering, or related field plus three years of experience in developing client/server and/or Web-based technologies, and three years of experience in software development using Visual Basic and/or Java, and three years of experience in designing and implementing e-commerce infrastructure and data warehouses. Applicants should also have three years of project management experience directing lower-level engineers. For consideration, please forward your resume and letter of interest by mail to: CIGNIFY Corporation, Vice President Engineering, 7000 Central Parkway, Atlanta, GA 30328. Please do not email resumes. EOE

Applications Programmer for NE OH to analyze user req. procedures & problems to automate processing/improve existing computer system, troubleshoot/eval existing IS for effectiveness. Bachelor's Degree in Information Systems. Resumes to HR Custom System Company, 6670 W Snowville Rd. Cleveland, OH 44141. EOE. No calls.

Software Developer Web-based App Dev. BS in Comp Sci or related field +5 yrs exp in app dev reqd, and 1 yr exp in commerce for agrifood industry. Exp to incl JAVA, PERL & Oracle in UNIX/LINUX environ. Send resumes to Bill Boswell, E-markets, Inc. 1606 Golden Aspen Drive, Ste 108, Ames, IA 50010

Application Analysts & Developers. Software (Reynolds DMS & auto products) apps design & development using Java, Visual basday VB, VC++, Businessware, SQL Server 2000 & ASP/IIS 5.0. Req. BS in comp sci, engg, or related field & 1-2 years of exp in programming, developing, or analysis. Resumes to: K. Cramer, Reynolds and Reynolds, PO Box 2608, Dayton, OH 45401

CapitalStream seeks Sr. Impl Engr for HQ office in Seattle WA. DESC: Supr prod. dev team; anlyz asset bus. info. sys; map & re-engr bus. proc. flow; mng sys integration, dsgn, dev, impl, & test RDBMS and multi-tiered distrib. apps. utils SQL, VB, ASP, XML, Java & Win o/s. REQS: BS in Engr, CS, Math, or Phys. plus 2 yrs. exp. mng. prod. dev team thru s/w dev cycle. Plus, 1 yr. exp. dsgn, dev, & impl RDBMS & multi-tiered distrib. aps. utils. SQL, VB, ASP, XML, & Win o/s. Prem. sal. + benes. & bns. Pls. reply to HR-Tech Recruiting, job# CA-101, 501 N 34th ST, Seattle, WA 98103.

Database Administrators
Design, develop and maintain complex databases in Oracle 7.3.3, 8.x, 8i, 9i. RMAN, SQL*Backtrack 3.0.4/3.3.0, replicate KORNSHELLS, Java, Pro*C, SQL, PL/SQL. EMC's BCV, VERITAS File Systems 3.0.3 VM, BRIO 6.0/6.0. SIEBEL 99.6/2000. BMC's Patrol, Developer 2000 Forms 6.0, UNIX, SUN HA 2.2, HP 10, 11.0 and SCO 6.0. Prevailing wage/benefits. Send resume to Attn: Manoj Appully, Lantern Systems Inc., 520 Sessinghem Court, Alpharetta, GA 30005. EOE

Applications Dvlpr wanted by Int'l Ad Agency in Manh. Asst interactive producers w/strategy creation coding & appl dvlpmt doc & catalog software, perf unit testing & coding. BS in Comp Sci & 1yr exp in job offered req. Respond to LC/HR Dept. PO Box 4241, GCS, NY 10163

Several computer related positions available for large medical products distribution company. Degree, technical skills & experience vary per positions. Send resume to Ann Christante, PSS World Medical, Inc., 4345 Southpoint Blvd., Jacksonville, FL 32246

Coordinator Computer Programming/Systems Analysis - Serve as top level expert in one or more highly specialized areas of applications, systems analysis & programming. Provide technical leadership on complex projects. Supervise lower level analysts & programmers. Requires B.S. in Info Sys., Comp. Sci. or Elect. Eng. & at least 7 yrs relevant exp. as a software eng., programmer or programmer analyst. Please submit your resume and salary requirements to Valerie Jeffries, Nextel Communications, Inc., 593 Herndon Parkway, Herndon, VA 20170.

Systems Analyst- 3+ years experience in Analysis, Design and Development of software applications using VB,SQL Server, ASP,COM,XML and other related software. BS degree in Computer Science or related field required. Mail resume & references with Position ID: PGSCW to: Paramount Global Solutions Inc.2657 Creek Wood Cir, Suite 1, Dayton OH 45439.

Call your ITcareers Sales Representative or Janis Crowley. 1-800-762-2977

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careers

Programmer/Analysts needed for Houston based firm to work in various unanticipated U.S. locations to plan, develop, test, document computer programs, write software based technical specifications and maintain software programs and test systems. Must have a Bachelor's in Computer Science or Engg. and 2 yrs. exp. in job offered or as Software Engineer. Fax resume to COMPQSOFT INC., HR Dept. at 281-272-2515. Ref. Code: Put PA 0802N on the resume.

International Programming & Systems, Inc. has employment opportunities for Systems Analysts with any of the following skills: COGEN, Sapiens, Teradata. We are also looking for EAI experts with solid MQ Series, MQ SI, and SAP experience. Positions available throughout the U.S. including Hamilton & W Trenton, NJ; Philadelphia, PA. Travel to other U.S. job sites may be required. Electronic responses are encouraged. cflavell@psamerica.com or send resume to C. Flavell, IPS, 1875 Six Grant Street, #300, San Mateo, CA 94402 or fax (650)572-8679. Principals only please.

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WorldCom

so far, Padilla said.

"My senior management asked me, 'Are you worried?' and I told them I have the phone numbers of the sales reps for other companies if, God forbid, I need them," Padilla said. "But WorldCom's been good to me."

Padilla said he pays about $1,400 monthly for each of the managed firewalls in each of the three cities. The only downside of working with WorldCom, he said, is that he regularly gets invoices for services he didn't order. But WorldCom has always settled the differences amicably when he has found them, he said.

"If I moved to another provider, they wouldn't have the quality firewall service and would still charge me for services improperly," he said.

Improper billing is so rife in enterprise networking accounts that large customers are advised to insist on contracts that include a method for resolving disputes with interest paid for outstanding balances, analysts said.

Padilla said a managed firewall is invaluable for updating applications and adding users or filing trouble reports. WorldCom installs a Nokia Corp. IP 120 server at each user site.

WorldCom said the international rollout will extend globally through the end of this year, with local-language help desk support in each region.

But Counse Broders, an analyst at Current Analysis in Sterling, Va., said a true global rollout will be longer in coming. And while WorldCom contends that its offering is unique, Broders disagrees, citing offerings from IBM, AT&T Corp. and Equant NV, a unit of France Telecom. Equant boasts network support for firewalls and other systems in 145 countries, he said.

There are "so many options available to customers with providers that don't have the bankruptcy cloud hanging over them," Broders said.

Like several other analysts, Broders suggested that WorldCom is attempting to divert attention from its financial woes.

"It's obvious WorldCom needed some kind of positive news out there, given their situation," he said. "And cranking the marketing machine is the way they do it."

The Managed Firewall

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INSTALLED ON a Nokia IP 120 server; installing a second server for high availability raises the cost by 50%.

SOURCE: WORLDCOM INC.

WorldCom Expands Customer Service Guarantees

WorldCom began beefing up customer service guarantees in July, before filing for Chapter 11 and after federal investigations of financial irregularities surfaced.

The impact of the offers seems to be negligible, according to several analysts. But by the same token, there hasn't been a massive exodus of WorldCom customers to other major service providers that are strengthening their own guarantees to woo WorldCom accounts, said Brownlee Thomas, an analyst at Giga Information Group Inc. "Most network managers want to put their heads under a pillow and say, 'This is just a bad dream and will all go away when I wake up,'" Thomas said.

WorldCom launched a Customer Satisfaction and Loyalty Program in early July that includes a six-month guarantee for new or existing customers who add new services or renew existing services. If a customer is dissatisfied within 180 days of signing up for the service, WorldCom will let the customer out of the contract without penalty. Also, WorldCom doubled service-level agreement payments should network service fall below an agreed-upon level.

Finally, customers who add or renew services will receive a credit for each of the next two quarters. WorldCom said the value of the credit is based on the extent of the service.

Analysts are warning WorldCom customers to find backup plans for WorldCom services in the event that service is disrupted and to immediately set up a second provider for 40% of essential services. According to Thomas, the biggest customers are even writing language into their contracts that gives them the authority to assume control of WorldCom networks and operating staff should a major disruption occur.

A WorldCom spokeswoman acknowledged that such takeover terms could be dictated but said that in general WorldCom wasn't being asked to put in such language.

"I can't rule out discussions are taking place like that, especially in highly outsourced situations," said spokeswoman Deborah Lewis. Those situations include contracts in which WorldCom has taken over many traditional networking functions of a customer, she said.

– *Matt Hamblen*

Continued from page 1

Cisco

pragmatically strong partnerships and business arrangements with the storage solutions major players," he said.

But IT managers like Mike Karash said Cisco's new product line has to prove itself before it gets into their data centers. Karash, manager of technical services at insurance giant The Progressive Corp. in Mayfield Village, Ohio, said he has already standardized on Brocade switches in his SAN, which he's currently re-engineering for better centralized management.

"We've been running a SAN here for about four years," he said. "We started out during the painful times [of storage networking] and are just finishing up re-engineering our infrastructure. There are only certain standardized vendors we'll let into the SAN."

Cisco acquired its switch technology when it bought 44% of San Jose-based Andiamo Systems Inc. in April 2001 for $54 million. Andiamo and Cisco wouldn't disclose any details of the product development until last week, when Cisco also said it's acquiring the remaining stock of Andiamo.

Cisco's contract with Andiamo states that it could pay as much as $2.5 billion for the remaining 56% of Andiamo's stock, with the price depending on sales of the switches during a three-month period after the deal is closed. That buyout would close no later than July 2004, officials said.

Cisco's new line of products all run on the same management software. Versions include Fibre Channel, SCSI over IP, and Fibre Channel over IP ports. Cisco is using four distinct chassis, one of which lets it configure up to 48 ports on its switch product. The other three chassis are for directors — fully redundant switches — that have up to 256 ports on a single box. The 256-port Cisco model 9509 director can be stacked three to a rack for as many as 768 ports.

"That instantly makes it the largest switch in the marketplace," said Arun Taneja, an analyst at Enterprise Storage Group Inc. in Milford, Mass.

The only other vendor that offers a 256-port director is Inrange Technologies Corp. in Lumberton, N.J., which holds about 5% of the Fibre Channel switch market, according to IDC in Framingham, Mass.

Stephen Beer, director of product marketing at San Jose-based Brocade — which commands 62% of the switch market, according to IDC — said Cisco's product line isn't a threat to established players. "There's a great difference between the delivery of loosely coupled packet data [on IP networks] and very tightly coupled ... high-performance, block-level delivery," he said.

Yet analysts are applauding Cisco's choice of technology because of its multiprotocol design and single management platform. "They have created a very elegant design," Taneja said. "The product line is fully capable of multiprotocol, but the initial emphasis is 100% Fibre Channel. That tells me they're going full-blast against Brocade and McData."

Gartner Inc. in Stamford, Conn., estimates that the Fibre Channel switch marketplace will grow from $1.2 billion this year to $4.3 billion in 2006.

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FRANK HAYES/FRANKLY SPEAKING

Thanks, Warchalkers

WARCHALKING? I'm for it. I think it almost qualifies as a public service. No, I don't trust the hackers who ride around with antennas made from coffee or snack-food cans, mapping out wireless access points to corporate networks. They're looking for ways to connect to our networks without authorization, so by definition they're not to be trusted.

But when those hackers mark the locations of wireless networks with chalk on the outside of buildings, that makes our work easier.

It removes any possible argument against better wireless network security.

Face it, security costs money. And like a lot of other things corporate IT departments should be doing, wireless network security isn't in the budget this year. And CEOs won't be in any rush to approve it for next year either.

That means far too many IT shops are depending on the time-honored strategy of "security through obscurity." We all know how that kind of wishful thinking goes: Maybe, if we're lucky, no one will notice any unsecured wireless access points in our networks.

Warchalking demolishes that strategy. Warchalking *advertises* wireless access points for all the world to see. And hosing off the chalked-up wall won't even work as a stopgap measure, because if you leave the security hole in place, the warchalkers will return — again and again.

So, what do you do when you discover warchalking symbols on or near your company's facilities?

You get a camera — fast, before the maintenance guys get a chance to clean it off. You take lots of pictures: close-ups so the chalking is clearly visible, longer shots so there's no doubt whose wall those chalk marks are on.

Next, you take those pictures to your CEO. You explain that this isn't ordinary graffiti. You explain, as simply as possible, what it *is* — a sign letting hackers know that your networks are ready and waiting to be compromised.

You point out that cleaning it off won't really help because the hackers already know where your wireless nets are — and if you don't secure them, they *will* be hacked.

Then you bullet-point your plan for wireless security. That includes how you'll inventory your site's wireless nets, what tools you'll need and what it will cost.

Finally, you ask for your CEO's full support on this. You'll need it, because there are probably wireless access points you don't know about, and you'll need clout to deal with non-IT managers and executives who really like the wireless nets they've slipped into their offices and warehouses below IT's radar.

Will you get that support and the budget you need to secure those wireless networks? Maybe. But perhaps not at first. You'll have to be prepared for denial, for blame, for anger. Even if you lay the situation out clearly, you may take a beating for bearing such bad news. This could be your ugliest meeting since the CEO finally realized that Y2k was real and was going to cost real money to fix.

And that's why warchalking is a good thing. Wireless insecurity a hypothetical — maybe there's a risk, maybe not. But those Polaroids of warchalked walls are real. The outsiders who made their marks on your facilities are real. And the message they're sending to the world — "Here's a ready-to-use hole in this company's networks" — is very, very real.

When you discover warchalking on your buildings, there's no longer any question of whether you have a wireless security problem. The only unknowns left are how much time you've got before you're hacked and what you'll do about it.

That really does make your job easier. It's proof positive that you do need the extra wireless security budget before it's too late. It's a warning that's impossible to miss and hard for even the thickest, most obstinate CEO to ignore or deny.

With warchalking, the writing is on the wall. ■

Frank Hayes, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

SHARK TANK

WHILE A renovation is under way, IT pilot fish notices some rooms are missing phone and data outlets. Not a problem, says project manager – they're storerooms. Today's storeroom is tomorrow's office, fish points out. But project manager is adamant. Then a week after staff moves in, IT gets a call: The computers won't work in some offices. "All the storerooms had been converted to offices to accommodate staff," says fish – and installing conduits and power will cost several times more than it would have when the walls were still open.

AT THIS military site, network response time is intermittently awful. Consultant pilot fish goes looking for the problem – but nobody likes his answer. "They laid unshielded network cables under the runway," sighs fish, "so they got horrible response time while planes were taxiing over that part of the airfield."

FIRST DAY on the job for this IT support pilot fish, a critical WAN link goes down. "I had no contacts and no idea who, what, where, when or how," says fish. But he quickly meets with the site manager and calls the ISP and telco, which says it'll have a tech on-site in three hours to diagnose the trouble. Then fish tells site manager he's running out for some fast food before the telco techs arrive. "I forgot to tell you," manager says, "the road is closed. A car crashed up the street and knocked over a telephone pole. . . ." "Then his voice trailed off," says fish. "*D'oh!*"

ENGINEER'S PC runs at a crawl, and IT pilot fish can't figure it out – the PC tests out fine on the bench. Then one day fish stops by the engineer's desk, does a diagnostic and notices that e-mail is hogging resources. You have over 200 e-mails open, fish says. Why don't you close them after you've read them? Surprised engineer replies, "I didn't know you could do that."

Tell me what you know: **sharky@computerworld.com** You score a sharp Shark shirt if we use your true tale of IT life. And check out the daily feed, browse the Sharkives and sign up for Shark Tank home delivery at *computerworld.com/sharky*.

The 5th Wave

"Do you think the 'Hidden Rhino' clip should come before or after the 'Waving Hello' video clip?"

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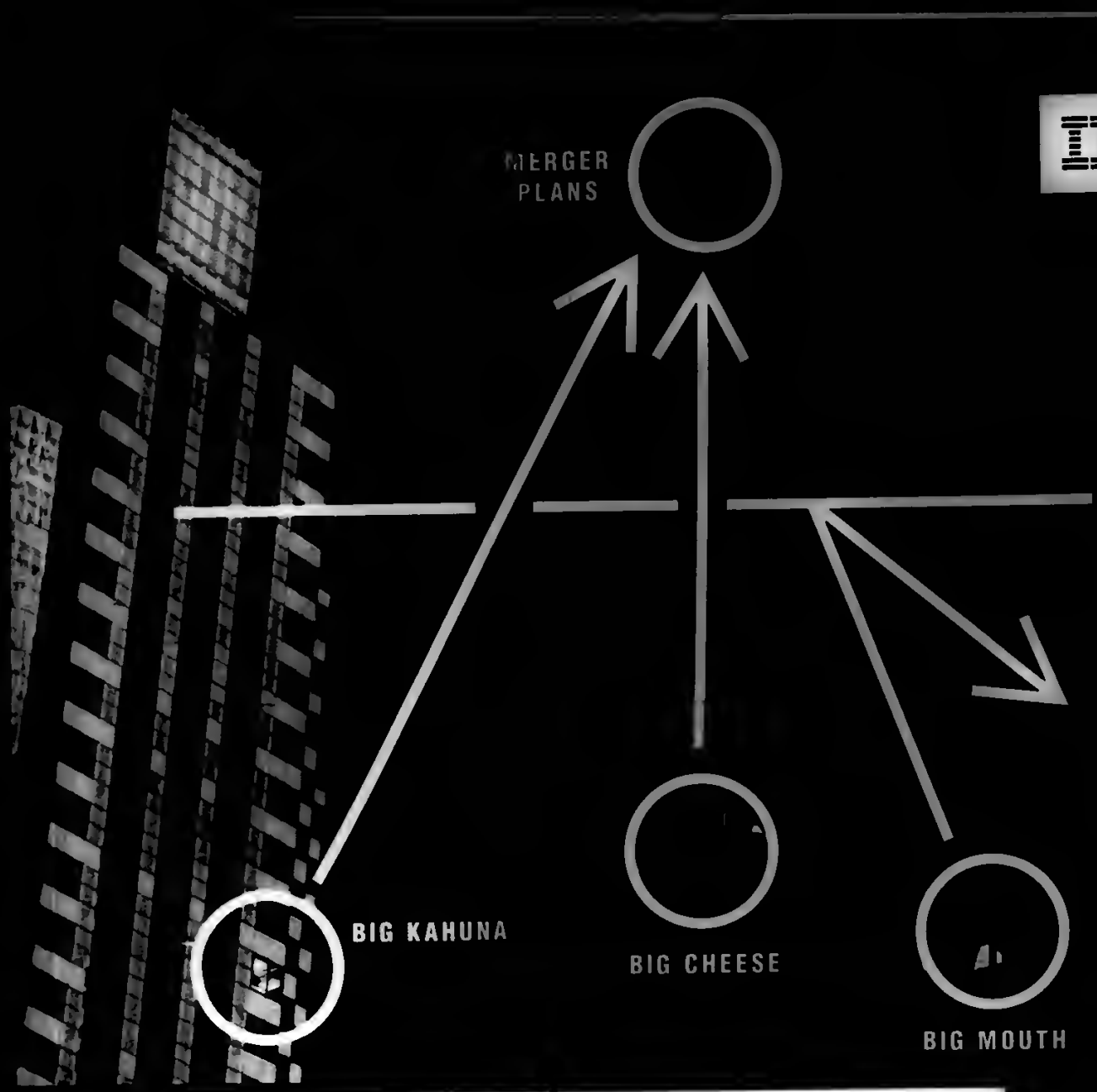

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